

**Abstracts presented at the 26th Annual Conference of  
Radiological Society of Pakistan held on October 29<sup>th</sup> to 31<sup>st</sup> 2010,  
in Karachi, Pakistan**

**Venue : Karachi Sheraton Hotel**

**Organizing Committee Members:**

<b>Prof. Mustafa Kamal</b>	(President RSP)
<b>Dr. Ashraf Ali Achakzai</b>	(Secretary General RSP)
<b>Dr. K. Khurshid Ahmad</b>	(Vice President RSP)
<b>Dr. Jehangir Shah</b>	(Finance Secretary RSP)
<b>Dr. M. Nadeem Ahmad</b>	(Chairman Scientific Committee)
<b>Dr. Muhammad Nafees</b>	(Chairman Conference)
<b>Dr. Mukhtiar Ahmed</b>	(Secretary Conference)
<b>Dr. Rashid Ahmed</b>	
<b>Dr. Syed Mahmood</b>	
<b>Dr. Zafar Sajjad</b>	
<b>Prof. Tariq Mahmood</b>	



Organized by:  
Radiological Society of Pakistan

**26th Annual Conference 2010**  
**Radiological Society of Pakistan**  
**Abstracts**

## **INVITED LECTURES (T)**

### **Session-I : Women and Genitourinary Imaging**

#### **T-01**

#### **Clinical Applications of Customized Protocols in Multiphasic MDCT**

PROF. SHABBIR A. NAEEM

*Department of Radiology, Sindh Institute of Urology and Transplantation, SIUT, Karachi, Pakistan*

*E-mail: shabbirnaeem@hotmail.com*

The presentation will include the following:

- a. Necessity of Protocol customization in Contrast MDCT
- b. Timing of CT Data acquisition in different phases in various clinical settings
- c. Showing examples of relevant cases like

- 1) CTA for Arterial Phase only
- 2) CTA for Mass Evaluation
- 3) Multiphasic Study in different clinical situations

After the presentation the audience should be able to:

- understand the selection criteria of multiphasic MDCT in various disease processes
- select an appropriate timing of different CT phases
- appreciate vascular patterns in malignant tumors
- tailor the phase selection according to special clinical needs

### **Session-I : Women and Genitourinary Imaging**

#### **T-02**

#### **MRI in Mullerian Duct Anomalies - One Stop Shop**

DR. S. S. BAKSHI

*Department of Radiology, Delta Heart Centre, Ludhiana, India*

*E-mail: ssbrad@gmail.com*

In congenital anomalies of the female genital tract Mullerian Duct anomalies present a peculiar subset of problems. Accurate diagnosis greatly influences the kind of treatment to be followed. X ray hysterosalpingography involves use of ionizing radiation to a woman in the reproductive age group, and cannot be done on unmarried women. Ultrasound is highly operator dependent and CT suffers from use of radiation and poor tissue differentiation. MRI with its excellent tissue differentiation, lack of ionizing radiation and multiplanar capabilities presents a complete/ near complete solution to diagnose diseases of this type, which will be elaborated further in the presentation.

### **Session-I : Women and Genitourinary Imaging**

#### **T-03**

#### **Imaging of Scrotum**

PROF. M. TAMEEM AKHTAR

*Department of Radiology, Ziauddin Medical University Hospital, Karachi, Pakistan*

*E-mail: profmtakhtar@live.com*

The current armamentarium of diagnostic tools allow you to help not only to diagnose a scrotal case radiologically but combining them makes your imaging differential diagnosis narrower and narrower. The list includes ultrasound, both gray scale & Color Doppler, CT Scan, MRI along with isotope studies.

The scrotum, although a very superficial organ but hides deep seated pathologies. The problem is aggravated due to social hinderances which let the pathology grow without getting noticed unless it becomes unbearable by the individual, making the diagnosis more difficult.

In order to diagnose a long list of pathologies found in scrotum, the knowledge of radiological appearances of each pathology on all the available diagnostic tools is very important. The pathology detection is very easy on conventional gray scale ultrasound but must be supported with Color Doppler imaging. At times CT & MRI are also added not only to support your diagnosis but may help in staging of disease.

The most important feature of Scrotal imaging is timings, both of the commencement of symptom as well reaching a diagnostic department followed by the correct & timely diagnosis especially when it comes to acute scrotum including trauma & torsion. The role of imaging in diagnosing a cases of varicoceles, subtle hydroceles as well as small tumors cannot be questioned. The presentation will be focused on imaging of scrotum with different pathologies with commonly available diagnostic tools, especially in acute conditions.

### **SESSION II: Musculoskeletal Imaging**

#### **T-04**

#### **Value of MR Arthrography Compared with Conventional MRI in Shoulder Pathologies**

DR. S. S. BAKSHI

*Department of Radiology, Delta Heart Centre, Ludhiana, India*

*E-mail: ssbrad@gmail.com*

**PURPOSE:** To compare detection of pathologies of labrocapsular ligamentous complex of shoulder on MR arthrography and conventional MR imaging.

**METHODS:** 20 patients with suspected ligamentous, tendinous and labral injuries were selected. MR arthrography and conventional MR imaging was performed in these patients. Our routine series included T1-weighted, T2-weighted, and T2-fat saturated images in axial, coronal and sagittal planes using GP flex coil. MR arthrography was performed in neutral and ABER position after CT guided intra-articular injection of Inj. Gadolinium 0.15 ml + Inj Omnipaque 2 ml + normal saline 18 ml under local anaesthesia using anterior approach. MR arthrography, conventional MRI and arthroscopic findings were recorded and compared.

**RESULTS:** Increased sensitivity and specificity was seen in MR arthrography as compared to conventional MR imaging in anterior, posterior, SLAP tears and tendinous injuries, however greatest difference in sensitivity was found in partial thickness articular surface tears.

**CONCLUSION:** MR arthrography provides accurate anatomical and pathological details of the labrocapsular ligamentous complex and rotator cuff injuries of shoulder due to joint distension and improved contrast resolution which is especially helpful in detecting subtle derangements of these structures.

**CLINICAL RELEVANCE / APPLICATION:** MR arthrography is superior to conventional MR imaging for visualisation of capsulolabral, ligamentous and tendinous structures. The information provided by MR arthrography may have implications in better preoperative diagnosis and management of these lesions.

**SESSION II: Musculoskeletal Imaging****T-05****MR Imaging in Knee Joint**

DR. M. NADEEM AHMAD

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan**E-mail: nadeem.ahmed@aku.edu*

Disorders of the knee are responsible for a major source of referrals to the musculoskeletal radiologist. Most cases have suspected abnormalities within the joint either following an acute injury or a more insidious development of symptoms. Other common causes of referral are anterior knee pain, focal and diffuse swellings. MRI is the technique of choice for assessing the internal structures. CT arthrography is also an accepted technique but requires an intra-articular injection. Plain films are widely used in suspected skeletal trauma and arthropathies but are inferior to MRI in most other conditions. Ultrasound is mainly used to differentiate cystic from potentially malignant solid periarticular masses.

Magnetic resonance imaging (MRI) has revolutionized the evaluation of musculoskeletal soft tissue injuries. Now here is this more evident than in the evaluation of internal derangements of the knee. MRI is an accurate and cost-effective means of evaluating a wide spectrum of knee injuries, ranging from cruciate-collateral ligament injuries to cartilage deficiencies.

For interpreting radiologists and clinicians, evaluation of a knee using MRI requires knowledge of the proper imaging techniques, normal and aberrant anatomy, and the clinical significance of detected abnormalities.

**SESSION IV: Abdominal Imaging****T-07****Three Dimensional Endoanal Ultrasound Diagnosis of Anal Fistula with and without H<sub>2</sub>O<sub>2</sub> Enhancement**

PROF. SAFDAR A. MALIK

*Department of Radiology, Ganga Ram Hospital, Fatima Jinnah Medical College, Lahore, Pakistan**E-mail: drsafdaralimalik@hotmail.com*

Anorectal fistula is a chronic phase of anorectal infection and characterized by chronic purulent discharge or cyclical pain associated with abscess reaccumulation followed by intermittent spontaneous decompression.

**AIM:** The 3D Endo Anal Ultrasound (EAUS) has been increasingly used in the pre-operative evaluation of anal fistulae but H<sub>2</sub>O<sub>2</sub> enhanced 3D EAUS is the latest development in EAUS and is expected to diagnose anal fistulae with high accuracy. The purpose of the initial study is to identify the:

1. Primary tract (intersphincteric, transsphincteric, suprasphincteric)
2. Secondary extension including horse shoe tract, supra-elevator extension and abscess formation.
3. Internal opening localized with respect to a clock face.

The images were acquired with a 10 MHz 3600 rotating end probe (type 2050, BK Medical, Holland, Denmark).

All the patients had ultrasound from the site of discharge using a 10 MHz linear probe to see the subcutaneous collection and tract.

**It was a 3 stage ultrasound:**

1. Linear 10MHZ probe at the site of superficial opening / complaint.
2. 3D EAUS without using H<sub>2</sub>O<sub>2</sub> as contrast.
3. 3D EAUS using H<sub>2</sub>O<sub>2</sub> as contrast.

**METHOD:** It included initial 20 patients. 5 Females and 15 males age ranging from 25 – 60 years.

**RESULTS:** The accuracy of H<sub>2</sub>O<sub>2</sub> enhanced 3D EAUS significantly higher

than simple 3D EAUS with respect to classification of primary track or secondary extension or localization of internal opening.

**CONCLUSION:** 3D EAUS and H<sub>2</sub>O<sub>2</sub> enhanced 3D EAUS appears highly reliable in the diagnosis of an anal fistula.

**SESSION V: Neuro Imaging and Paeds****T-09****Update on Magnetic Resonance Spectroscopy (MRS)**

PROF. SYED NASIR RAZA ZAIDI

*Department of Radiology, Allama Iqbal Medical College, Jinnah Hospital, Lahore, Pakistan**E-mail: nasirzaidi14@hotmail.com*

**INTRODUCTION:** Magnetic resonance spectroscopy (MRS) is a noninvasive technique that can be used to measure the concentrations of different chemical components within target tissues. The technique is based on the same physical principles as magnetic resonance imaging (MRI), i.e., the detection of energy exchange between external magnetic fields and specific nuclei within atoms. The principal difference between MRI and MRS is that in MRI, the emitted radiofrequency is based on the spatial position of nuclei, while MRS detects the chemical composition of the scanned tissue.

An MRI image is first generated, and then MRS spectra are developed at the site of interest, termed the voxel. The information produced by MRS is displayed graphically as a spectrum with peaks consistent with the various chemicals detected. While an MRI provides an anatomic image of the brain, MRS provides a functional image related to underlying dynamic physiology and pathology. MRS can be performed with existing MRI equipment, modified with additional software and hardware.

**MECHANISM OF DETECTION OF PATHOLOGY WITH MRS:** Proton MRS of the healthy brain has been extensively studied and reveals five principal spectra arising from: N-acetyl groups, especially n-acetylaspartate (NAA), choline-containing phospholipids (Cho), creatinine and phosphocreatinine Lipid & lactate. Different patterns of the above spectra, in both the healthy and diseased brain, are the basis of clinical applications of MRS. The MRS findings characteristically associated with non-necrotic brain tumors include elevated Cho levels and reduced NAA levels. Peripheral applications of MRS include the study of myocardial ischemia, peripheral vascular disease and skeletal muscle. Applications in non-CNS oncologic evaluation have also been explored.

**Role of MRS: Literature Review:** The role of MRS in diagnosis and therapeutic planning has not been established by adequate clinical studies. Specifically, there have been no clinical trials demonstrating improved outcomes in patients evaluated with MRS compared to patients evaluated with conventional imaging modalities. The consensus in the literature is that further studies are necessary to determine MRS' role in the diagnosing and planning treatment in neurological diseases.

**PROPOSED CLINICAL APPLICATIONS OF MRS**

**A. MEDICALLY NECESSARY INDICATIONS:** Magnetic resonance spectroscopy (MRS) is considered medically necessary when used to: Differentiate recurrent or residual brain tumor from post-therapy changes. (e.g., delayed radiation necrosis); OR

Differentiate brain tumor from other non-tumor diagnoses, (e.g., abscesses or other infectious or inflammatory processes).

**B. INVESTIGATIONAL AND NOT MEDICALLY NECESSARY:**

Magnetic resonance spectroscopy (MRS) is considered investigational and not medically necessary for all applications not listed above, including, but not limited to: Cerebrovascular injury, Degenerative diseases Dementia (including Alzheimer's disease), Epilepsy, Metabolic and mitochondrial diseases Multiple sclerosis- diagnosis and monitoring, Parkinson's disease

**SESSION V: Neuro Imaging and Paeds****T-11****MRI Imaging of white matter disease in Children; Review of Literature**

DR. SHAZIA F. KHAN

*Department of Radiology, Pakistan Institute of Medical Sciences (PIMS), Rawalpindi, Pakistan  
E-mail: shazpa@hotmail.com*

White matter diseases pose a diagnostic dilemma for both clinicians and diagnosticians.

Specific diagnosis is usually delayed and involves a battery of tests with great financial cost and is still often inconclusive.

A review of literature is presented here to try to simplify as far as possible, the imaging criteria of white matter disease on MRI, and to narrow the D/D for further investigations.

For this, an algorithm is presented for grouping the white matter diseases into MRI patterns of hypomyelination vs other white matter pathologies and further differentiation of these diseases on other MRI features.

The MRI pattern recognition by systematically analyzing details on MRI images and integrating these into patterns per disease will help to establish a reasonably short D/D of white matter diseases.

**SESSION VII: Head and Neck Imaging & Nuclear Medicine****T-13****Staging of Head and Neck Tumors**

DR. ZISHAN HAIDER

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: zishan.haider@aku.edu*

The head and neck tumors are increasing in Pakistan at an alarming pace. The head and neck is a region of considerable anatomical and functional complexity, making the accurate diagnosis of neoplasm a challenging task.

The successful outcome of treatment will be largely determined by accurate mapping of the lesion, its local extension and the stage of the tumor.

Current radiological modalities provide a reliable visualization of the head and neck structures to an unprecedented level of detail. The role of the radiologist is of primordial importance in this respect. Indeed, mature, sophisticated imaging techniques such as multidetector CT, MRI and PET-CT are now available allowing exquisite morphological display of the extent of the disease in the head and neck region. The radiologist will thus be able to fully establish his role as a key member of the multidisciplinary team responsible for the global treatment strategy and the management of the patient with head and neck cancer.

In this talk three most common tumors will be discussed and their TNM staging will be elaborated. There will be brief overview for judicious choice of imaging modalities and their limitations.

**SESSION VII: Head and Neck Imaging & Nuclear Medicine****T-14****Recent Developments and Future Prospects of Spect Myocardial Perfusion Imaging**

DR. MASEEH UZ ZAMAN

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: maseeh.uzzaman@aku.edu*

Myocardial perfusion SPECT imaging is the most commonly performed functional imaging for assessment of coronary artery disease. High diagnostic accuracy and incremental prognostic value are the major benefits while suboptimal spatial resolution and significant radiation exposure are the main limitations. Its ability to detect hemodynamic significance of lesions seen on multidetector CT angiogram (MDCTA) has paved the path for a successful marriage between anatomical and functional imaging modalities in the form of hybrid SPECT/MDCTA system. In recent years, there have been enormous efforts by industry and academia to develop new SPECT imaging systems with better sensitivity, resolution, compact design and new reconstruction algorithms with ability to improve image quality and resolution. Furthermore, expected arrival of Tc-99m-labeled deoxyglucose in next few years would further strengthen the role of SPECT in imaging hibernating myocardium. In view of these developments, it seems that SPECT would enjoy its pivotal role in spite of major threat to be replaced by fluorine-18-labeled positron emission tomography perfusion and glucose metabolism imaging agents.

**SESSION VIII: Chest and CVS Imaging****T-15****Radiological Approach to Solitary Pulmonary Nodule and its Management**

DR. TANVEER UL HAQ

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: tanveer.haq@aku.edu*

Solitary pulmonary nodule (SPN) can be a diagnostic dilemma which sometimes requires extensive investigations to rule out malignancy. Prompt evaluation and management of an SPN are essential because of the significant number are malignant (about 40%). The goals of evaluation and management in the patient with an SPN are to minimize the number of thoracotomies for benign processes and expedite resection for malignant nodules there-by affording our patients the best chance of a potential surgical cure.

CT especially MDCT has an important role to play in which nodule characteristics like size, margins, calcification, ground glass, focal fat, cavitations, interval growth and enhancement pattern help to differentiate benign from malignant lesion. However there are clinical factors which increase the probability and have to be correlated. PET is helpful in patients for whom there is discordance between appearance of nodule on CT and pretest probability.

Percutaneous biopsy is possible in most of the cases. FNA would be good enough provided that on site cytopathologist is available otherwise core biopsy with or without coaxial techniques will be necessary. Recent advances have shown ablation of SPN by various methods can provide cure especially for metastatic disease and the results are comparable to surgical removal.

**SESSION VIII: Chest and CVS Imaging****T-16****CT Evaluation of Congenital Heart Diseases**

DR. NAILA NADEEM

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: naila.nadeem@aku.edu*

Introduction of MDCT has greatly reduced scanning time with greater spatial and temporal resolution. These benefits have increased the use of MDCT in the evaluation of congenital heart diseases (CHD). MDCT surpasses echocardiography by its comprehensive field of view and better technique as echocardiography is operator dependent. Conventional angiography gives more radiation compared to MDCT and is associated with catheter complications. Unlike conventional angiography on MDCT simultaneous assessment of pulmonary and systemic circulation is possible. Although MRI has the advantage of lack of radiation, MDCT has shorter scan time, better spatial resolution and patient friendly environment.

MDCT accurately depicts the complex congenital heart anatomy both before and after surgery. It is successfully used to assess the post-operative complications. In addition MDCT comprehensively assess the extra cardiac shunts. Airways and lung parenchyma are best seen on CT scan.

Greater anatomic converge per rotation, more consistent enhancement with lesser amount of iodinated contrast, high quality 2D reformation and 3D reconstruction makes it an ideal problem solving tool in complex congenital heart diseases. It compliments echocardiography which remains the primary imaging technique.

It has been reported that radiation exposure to children is greater compared to adults using the same protocol because of the lower weight of the children. Hence it is mandatory to carefully plan CT in children for a good balance between radiation dose and image quality. I will discuss the normal anatomy on MDCT, its indications, technique and protocoling. Salient features of common and important CHD will be highlighted along with steps to be embarked on for reducing the radiation dose.

**SESSION IV: Abdominal Imaging****T-06****Modern Imaging of Inflammatory Bowel Disease**

PROF. NADHAMUNI KULASEKARAN

*Ex. Professor of Radiology, Madras Medical College, Madras, India  
E-mail: drkulasekaran@gmail.com***MISSING ABSTRACT****SESSION IV: Abdominal Imaging****T-08****Staging of Esophageal and Gastric Tumors**

DR. ZIA FARUQUI

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan**E-mail: zia@skm.org.pk***MISSING ABSTRACT****SESSION V: Neuro Imaging and Paeds****T-10****Imaging and Management in Neurovascular Diseases - Surgical Perspective**

DR. ATHER ENAM

*Department of Neuro Surgery, Aga Khan University Hospital, Karachi, Pakistan**E-mail: ather.enam@aku.edu***MISSING ABSTRACT****SESSION VI: Radiology Oncology and Multidisciplinary session****T-12****Limitations of PET Imaging**

DR. ZIA FARUQUI

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan**E-mail: zia@akm.org.pk***MISSING ABSTRACT****PAPERS IN REDERVE (RES-T)****SESSION II: Musculoskeletal Imaging****RES-T-01****BMD – Applications and Interpretations in Current Clinical Practice**

DR. AKHTAR AHMED

*Karachi Institute of Radiotherapy and Nuclear Medicine (KIRAN ) Karachi, Pakistan**E-mail: drakhtarahmed@yahoo.com*

The usefulness and accuracy of Bone Mineral Density (BMD) in clinical practice is well established. It has been used for the diagnosis and evaluation of the efficacy of various therapeutic interventions. The use of BMD in epidemiological research has been questioned. BMD seems to be mistaken as measures of quantity of bone i.e. bone mass. BMD is not indicated in studying growing children and comparing various ethnic groups and also males with females. The limitations of BMD based on physical deficiencies of DXA are further obscured by the introduction of T-score. The use of T-Score threshold of - 2.5 has also been regarded as inappropriate for the diagnosis of osteoporosis that uses BMD at skeletal sites other than the Spine, Hip and Radius. The current presentation discusses all these applications and interpretations of BMD in current clinical practice.

**SESSION VII: Head and Neck Imaging & Nuclear Medicine  
RES-T-02****Parathyroid Imaging**

DR. BASIT SALAM

*Department of Radiology, Aga Khan University Hospital, Karachi*

*E-mail: basit.salam@aku.edu*

Primary hyperparathyroidism, whether caused by an adenoma or hyperplasia, can be cured surgically with a high rate of success. When performed by experienced surgeons, traditional surgical therapy bilateral four-gland exploration which is successful in more than 95% of cases.

The development of minimally invasive surgical approaches over the past decade, however, has made it even more imperative for imaging to accurately locate abnormal parathyroid glands before surgery.

With optimized preoperative mapping, the success rate of these less invasive techniques equals that of the traditional bilateral approach.

Parathyroid imaging has been used for the preoperative localization before parathyroidectomy.

The commonly used noninvasive imaging techniques include ultrasound, scintigraphy, CT, and MRI.

Ultrasound and <sup>99m</sup>Tc-sestamibi scintigraphy has emerged to be the investigation of choice, in the preoperative evaluation of primary hyperparathyroidism as well as for localization prior to surgery.

**SESSION VIII: Chest and CVS Imaging  
RES-T-03****Imaging of Mediastinum**

PROF. TARIQ MAHMOOD

*Department of Radiology, Jinnah Postgraduate Medical Centre, Karachi*

*E-mail: tariqradiologist@hotmail.com*

Mediastinal masses may be found incidentally in asymptomatic individuals but usually symptomatic, depending on their size and location.

Chest radiography is still the first time imaging modality used in those asymptomatic patients or when a mediastinal mass is suspected. But CT is currently the gold standard for the detection of mediastinal pathology.

MRI has a complementary role in the evaluation of mediastinal masses. It is mainly used to solve unanswered questions after CT scan, or to assess mediastinal masses in patients allergic to iodinated contrast material. This also shows the relationship of the mediastinal mass with adjacent structures.

There are other modalities like Barium, Isotopes but EUS is the emerging modality for diagnosis and biopsies. I will briefly talk about CT, MR, EUS.

## FREE PAPERS (F)

### SESSION I: Women and Genitourinary Imaging F-01

#### MRI In Sonographically Indeterminate Female Adnexal Masses

MAHREEN RASOOL

SAIMA IMRAN

M. SALMAN

TARIQ MAHMOOD

*Department of Radiology, Jinnah Postgraduate Medical Centre, Karachi, Pakistan*

*E-mail: mahkd@hotmail.com*

**OBJECTIVE:** To determine the accuracy of MRI in characterizing sonographically indeterminate female adnexal masses.

**INTRODUCTION:** Ovarian carcinoma is the second most common gynecological malignancy with its highest rate of mortality. Primary goal of imaging in evaluation of adnexal masses is to differentiate malignant and benign diagnosis in order to direct the patient to appropriate treatment algorithm. Ultrasonography is traditionally being used as primary imaging modality for evaluation of female pelvis as it has a wide range of specificity i.e 60-90%, every mass cannot be characterized by ultrasound, resulting in 20% of adnexal masses being classified as indeterminate.

**PURPOSE OF STUDY:** The purpose of this study is to establish the importance of MRI as the next non invasive modality for the characterization of female adnexal masses.

**MATERIALS AND METHODS:** A cross sectional study, conducted in the Department of Radiology in collaboration with Gynaecology and Pathology departments JPMC Karachi over a period of 7 months ( March 2010-Sep 2010). 100 patients with age range (20-60yrs) of sonographically indeterminate adnexal masses underwent MRI examination and data collected on predefined performance and masses were accessed using the descriptive variables of Size of mass, Site of mass, Consistency of mass (solid, cystic, mixed) and Signal intensity of mass on T2 weighted and contrast enhanced images. Patients subsequently underwent surgery for histopathological diagnosis.

**RESULTS:** Final results including sensitivity, specificity and diagnostic accuracy of MRI to be followed after completion of study in Sep 2010.

**CONCLUSION:** MRI evaluation of female adnexal masses is highly accurate in characterizing the lesions into benign and malignant categories and can influence the treatment option in a cost saving manner with respect to gynaecological cases.

### SESSION I: Women and Genitourinary Imaging F-02

#### Clinical Value of PET/CT in Management of Ovarian Carcinoma; Our Initial Experience

SAMAN CHAUDHRY

SADIA ZULFIQAR

AMAILA RAMZAN

ZIA S FARUQUI

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan*

*E-mail: dr.smn@hotmail.com*

**PURPOSE:** To evaluate role of PET/CT in management of ovarian cancer

**MATERIALS AND METHODS:** 50 consecutive patients with suspected or

known ovarian carcinoma undergoing PET/CT for various indications were included in the study. All of these patients had undergone conventional imaging. Of these, 4 patients underwent PET/CT for pre-op assessment, 8 for post op evaluation, 6 for treatment response analysis, 30 with suspicion of recurrent disease and 2 for equivocal findings on CT/MRI. PET findings were compared with final diagnosis obtained by histopathology or clinical follow up. The clinical contribution of PET was assessed by evaluating whether PET yielded information complementing the findings of conventional modalities and by examining its impact on treatment.

**RESULTS:** PET/CT influenced treatment decisions in 49 percent of the patients. Overall sensitivity, specificity, and accuracy of conventional imaging modalities were 71.4%, 74%, and 71.3%, respectively, and these rates improved to 94.8%, 100.0%, and 96.1%, respectively, by considering both conventional imaging modalities and PET findings. FDG PET/CT is limited in its ability to identify lesions < 1 cm, in particular, those smaller than 5 mm, leading to a false-negative rate of 5%–10%. Moreover, in the abdomen and pelvis, a large number of misregistrations can occur as a result of the physiologic uptake in bowel and bladder and as a result of bowel peristalsis. PET/CT is somewhat limited in its ability to distinguish postoperative inflammatory changes from tumor recurrence or persistence

**CONCLUSION:** Our preliminary data suggest that whole-body FDG PET/CT can significantly modify the assessment of the extent of primary and recurrent ovarian cancer and, hence, often alters patient management substantially. FDG PET/CT thus can be a complementary modality for pre-operative evaluation and following up patients who have had ovarian cancer, especially those believed to be at risk for recurrence.

### SESSION I: Women and Genitourinary Imaging F-03

#### Yield of Stereotactic Core Breast Biopsy: Cost Effectiveness

IMRANA MASROOR

SHAISTA AFZAL

YASIR JAMIL

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan*

*E-mail: imrana.masroor@aku.edu*

**PURPOSE:** To determine the yield of stereotactic core breast biopsy and its effect on cost saving and patient management.

**MATERIAL & METHODS:** The study was conducted at Radiology Department of Aga Khan Hospital Karachi. It was an observational study. All female patients undergoing stereotactic core breast biopsy under mammographic guidance from January 2005 to December 2009 were included in the study. All patients underwent stereotactic core biopsy using Siemens MAMMOMAT NOVA 3000 mammography unit.

A 14 G needle with Magnum biopsy gun was used. All those patients with incomplete medical records were excluded from the study. All breast biopsy results were either compared with surgical findings as gold standard in cases, the result of core breast biopsy were malignant and with follow up or needle localizations in case of benign core biopsy findings.

**RESULTS:** A total of 84 female underwent stereotactic core biopsy during the study period. Out of these 10 patients had incomplete medical records or follow ups and were excluded from the study. Out of 74, 15 had malignant results and were confirmed on histopathology of final surgical mastectomy specimen. Rest of the 59 patients had benign results on histopathology; five of these patients had needle localization of same area due to either suspicious mammographic findings or strong clinical suspicion. All were proven histopathologically to be benign on open surgical biopsy. Rest of 54 patients

with benign results had follow-up mammograms the follow up period was from 1-5 years.

**CONCLUSION:** Stereotactic core breast biopsy is a safe and cost effective method for determining the nature of suspicious mammographic findings.

## **SESSION I: Women and Genitourinary Imaging F-04**

### **Role of Transarterial Embolization in Hemorrhagic Renal Emergencies**

RAZA SAYANI  
MUHAMMAD AZEEMUDDIN  
TANVEER UL HAQ  
RANA SHOAIB HAMID  
BASIT SALAM

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: raza.sayani@aku.edu*

**INTRODUCTION:** Transarterial angioembolization (TAE) has a well-established role in endovascular treatment of haemorrhagic renal emergencies which may be iatrogenic, following trauma or occur spontaneously with or without underlying pathology. These injuries can result in hemorrhage which are self-limiting in most cases and do not need any intervention however presence of massive hemorrhage or continuous hematuria may necessitate aggressive therapy. With the advancement in intervention radiology techniques and materials it is now possible to perform superselective embolization with minimal tissue loss.

**OBJECTIVE:** To review the effectiveness of therapeutic transarterial embolization in controlling hemorrhagic renal emergencies irrespective of the cause of emergencies.

**MATERIALS AND METHODS:** 37 vascular angiographies were performed in 32 patients (18 males and 14 females, age range 19-70 years) who were referred with hemorrhagic urological emergencies to Aga Khan University hospital's angiography suite from July 2005 to July 2010. Embolization was performed with coils, polyvinyl alcohol particles, N-Butyl cyanoacrylate glue and gel foam according to the clinical indication. Data on clinical indication, technique, site and type of bleeding lesions were obtained from a retrospective review of medical records. Success rate, clinical outcome and complications of the procedure were analyzed.

**RESULTS:** Indications of procedure included iatrogenic injury (n=18), Renal mass on clinical examination and imaging (n=4), hematuria with pseudoaneurysm on examination (n=3), hematuria with no known cause (n=3), post traumatic renovascular injury (n=2) Renal arteriovenous fistulas (n=2). Twenty six patients underwent successful endovascular control of bleeding. Eight examinations were negative for active extravasation, two of whom showed hemorrhage in second session and were embolized. Two sessions were needed in two patients at different time interval. Complication as dislodgement of coil in distal profunda femoris artery was seen in one patient with no significant obstruction to flow.

**CONCLUSION:** Transarterial renal angioembolization is a safe and effective therapeutic tool for managing haematuria or hemorrhage in renal emergencies. Wherever and whenever indicated it should be the first preferred treatment modality.

## **SESSION II: Musculoskeletal Imaging F-05**

### **Use of Fast Turbo Spin Echo Sequence for Magnetic Resonance Imaging of Temporomandibular Joint**

AMAILA RAMZAN  
NAJAMUDDIN  
ZIA FARUQUI  
KHURRAM AFTAB

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan  
E-mail: amyla-r@hotmail.com*

**PURPOSE:** MRI is now the modality of choice for non invasive imaging of TM Joint. In most of these MRI studies, T1 and PD weighted images are obtained to highlight the anatomical details of disc and the joint. T2 weighted images are acquired to demonstrate the joint effusion, inflammation and synovial disease. To obtain good quality T1 and PD images with conventional spin echo sequences, it takes about 10 mins. Total imaging time may reach up to 1 hour. With the use of new fast sequences, imaging time for each sequence can be reduced up to 2 minutes.

**MATERIAL AND METHODS:** 20 patients were selected for the study; most of them were asymptomatic volunteers. Fast turbo spin echo sequence was used with TR of 2800ms and TE of 60ms. The disc contour and condylar morphology were assessed and compared with conventional SE T1 and PD images. Intraarticular fluid was assessed and compared with routine T2 weighted imaging.

**RESULTS:** The net image acquisition time was considerably reduced with this fast sequence without any compromise on image quality.

**CONCLUSION:** Use of this fast sequence can reduce imaging time without any effect on image quality. This is particularly important in patients with restricted jaw mobility who are unable to keep the mouth opened for long and this result in image degradation due to motion artefacts.

## **SESSION II: Musculoskeletal Imaging F-06**

### **Interobserver Variability in Interpretation of Lumbar Herniated Discs and Root Compression: Comparison of Neuroradiologist and Senior Radiology Resident's Findings**

RANA SHOAIB HAMID  
IMAAD UR REHMAN  
WASEEM AKHTAR MIRZA  
ROHANA NAQI  
MIRZA AMANULLAH BEG

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: rana.shoaib@aku.edu*

**INTRODUCTION:** Spinal stenosis due to lumbar disc disease is one of the commonest causes for referral to neurosurgeons and physicians. MRI of lumbar spine is the gold standard for diagnosis. It is common practice around the world that radiology residents initially screen MR lumbar spine for evaluation of spinal stenosis during daytime and also during on call hours and sometimes important decisions regarding patient management are taken on their opinions alone.

**OBJECTIVE:** The purpose of this study is to analyse interobserver variability between a qualified neuroradiologist and senior radiology resident in the diagnosis of spinal stenosis.



**MATERIALS AND METHODS:** Retrospective random analysis was made of medical records and images of 55 patients who underwent MRI of lumbar spine for suspicion of spinal stenosis between March 2010 till July 2010 at Aga Khan Hospital. One fellowship trained neuroradiologist and one senior resident evaluated the images on PACS system separately. Both observers were unaware of patient's clinical history and each other's findings. Lumbar discs at L3-L4, L4-L5 and L5-S1 levels were evaluated by both observers for disc disease and nerve compression. Findings were recorded on a performa and analyzed with SPSS version 16.

**RESULTS:** Total 165 lumbar discs were studied by both readers in 55 patients. Interobserver agreement for assessment of disc bulge was fair. (Kappa value 0.417). Interobserver agreement for assessment of disc herniation was good. (Kappa value 0.705). Interobserver agreement for presence or absence of nerve root compression was good. (Kappa value 0.736).

**CONCLUSION:** Good correlation was seen between neuroradiologist and senior radiology resident in diagnosing spinal stenosis indicating that the current practice of initial screening of MR lumbar spine by senior radiology residents does not hamper patient management.

## SESSION II: Musculoskeletal Imaging

### F-07

#### Cervical CT Should be the Gold Standard Screening Tool for Excluding Cervical Fractures in Patients Involved in Road Traffic Accidents in Developing Countries

NADIR KHAN

ZAFAR SAJJAD

JUNAID RAZZAK\*

HASNAIN ZAFAR\*\*

*Department of Radiology,*

*\*Department of Emergency Medicine,*

*\*\*Department of Surgery, Aga Khan University Hospital, Karachi, Pakistan*

*E-mail: nadir.jilani@aku.edu*

**PURPOSE:** Literature has shown that cervical CT has higher sensitivity for detection of fractures in comparison to x-rays especially in patients involved in moderate and high risk injuries. However these studies have been conducted in developed countries. Undeveloped countries have a larger population who travel in motorbikes, do not wear seat belts and have less strict traffic rules. The incidence of cervical fractures in such a population may be much higher. The purpose of our study is to compare the diagnostic yield of cervical CT and cervical x-ray in relation to the mechanism of injury in patients involved in road traffic accidents (RTA).

**MATERIALS AND METHODS:** The diagnostic accuracy of non-enhanced cervical CT (CCT) and cervical x-rays (CEXR) were retrospectively compared in patients who presented in the emergency department of a tertiary care hospital with involvement in a RTA. 104 patients were included in the study who got both a CCT and CEXR to evaluate for cervical fractures. All data was collected from medical records to evaluate the mechanism of injury at the time of traumatic event. Each CCT and CEXR was interpreted independently by a different radiologist who was blinded to the results of the other study.

**RESULTS:** Of the 103 patients, 62 (60.2%) had a normal cervical CT and x-ray. In 16 (12.5%) of patients cervical x-ray was reported as normal however there was evidence of fracture on CT. In these there were 7 fractures involving C1-C2, one at C3-C4 and 10. C5-C7. 3 of the 13 patients who had normal cervical x-ray also had bony chips encroaching into the spinal canal seen on CT. In the remaining 23 (22.3%), 10 fractures were reported on cervical x-ray and 34 were detected on cervical CT. The cervical injuries were associated in decreasing order with High speed > 50 km/hr in 14 RTA (non wearing a

seatbelt), roll over of vehicle in 9, riding motor bike in 7, car vs car/truck in 7, Ejected over 5 feet in 3, involved pedestrian in 3, and car vs animal in 2.

**CONCLUSION:** CT has a higher sensitivity for the detection of fractures in patients involved in RTA. Spiral CT should be considered as the gold standard screening tool for RTA victims especially if they are involved in a high speed > 50 km/hr (30 miles/hr) accident without a seatbelt, roll over of vehicle or involved with another car. Motor bike riders and pedestrians are also at a high risk and should have screening performed with CT cervical spine.

## SESSION II: Musculoskeletal Imaging

### F-08

#### Ozonucleolysis – Early Response in Cervical Disc Prolapse

UMAIR RASHID

M. FAROOQ

FERIHA

*Department of Neuroradiology, Lahore General Hospital, Lahore, Pakistan*

*E-mail: pprc@wol.net.pk*

Direct injection of ozone has been proven to be effective alternative to surgery for patients suffering from disc herniation in many centres around the world. We report our experience with ozonucleolysis between June 2005 to December 2009 with 550 patients affected by pain in cervical region (Bracehalgia) due to disc herniation including of postoperative recurrence disc prolapse. All these cases treated by intradiscal, or paravertebral oxygen – ozone injections. Patients age between 20 to 70 years underwent percutaneous ozonucleolysis. The procedure done under the angiofluoroscopy with full aseptic technique. The ozone generator, essential component placed close to the patients. Simple 23G needle to 22G spinal needle, (quincke type point) were used to inject ozone under fluoroscopy. No premedication or anesthesia were given and the procedures were performed at an outpatient facility with short hospital stay after the treatment.

Exclusion criteria for this therapy were neuroradiological evidence of calcified disc and marked disc osteophytes or major neurological deficit correlated with disc disease.

Among 550 patients 300 patients were followed up for 5 months, 50% of the treated patients showed complete recovery with disappearance of symptoms. 25% of cases complaint of occasional episodes of pain in neck and arms but no limitations of occupational activities – 15% of the cases showed in sufficient improvement – 5% cases no improvement and went for surgery, 10% of the cases never turned up after the first visit.

No side effects were reported at short and long term follow up. Clinical results hence evaluated with the modified MaNab method sharing 85% success rate.

The appropriate treatment of cervical disc herniation is a challenge. Oxygen Ozone therapy exploits the chemical properties of Ozone like immunomodulating action, analgesic and anti-inflammatory effects. Comparing of our results with those of already published in literature are same level or better. This treatment is useful in patients who have not responded to physical therapy and conventional pain therapy. Most of these patient had no FDA surgical indication. The patients who failed to benefit from ozonucleolysis underwent surgery. In all these cases, the previous O2 O3 gas therapy had no negative effects on the surgical procedure.

In our experience, Ozone Gas Therapy in treatment of herniated disc has revolutionized the percutaneous approach to nerve root disease making it safer, cheaper and easier to repeat than treatments currently in use. So oxygen ozone therapy should be 1st choice of treatment in cervical disc prolapse.

**SESSION IV: Abdominal Imaging****F-09****Coils Versus Poly Vinyl Alcohol Particles in Angioembolisation of Acute Non Variceal Acute Gastrointestinal Hemorrhage**

MUHAMMAD IDRIS  
 SIDRA HUMAYUN  
 TANVEER-UL-HAQ  
 BASIT SALAM

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
 E-mail: muhammad.idris@aku.edu*

**INTRODUCTION:** Microcatheter angioembolisation is effective and safe method with a technical and clinical success rate ranging from 70-100%. To date no one has compared the micro coils and PVA particles for the angioembolisation of acute GI bleed.

**MATERIAL AND METHODS:** Retrospective cross sectional study of all patients who undergone angiographic embolisation of acute gastrointestinal hemorrhage from Jan 2000 to August 2009 at Aga Khan University Hospital, Karachi. The patients were selected on the basis of angiographic Embolisation material used which includes microcoils and PVA particles or both. Both Embolisation techniques were compared in terms of technical success, clinical success, rebleed rate and ischemic complications. Data was analyzed on SPSS windows version 16. Chi square test was used to compare the technical and clinical success rates and procedure related ischemic complications of both techniques. A p value of <0.005 was considered significant.

**RESULTS:** A total of 82 patients with acute GI bleed underwent angioembolisation in our department. Out of which 73% (60/82) were males and 27% (22/82) were females. Coil embolisation was performed in 71% (58/82) and PVA embolisation in 24% (20/82) cases while both materials were used in 5% (4/82) cases. Technical success achieved in all cases with all treatment methods. Clinical success was 90% with coils and 75% with PVA particles while rebleed rate were 10% with coils and 25% with PVA particles. There were 2% ischemic complications with coils while no ischemic complication encountered with PVA embolisation.

**CONCLUSION:** In angioembolisation of acute GI bleed both micro coils and PVA particles can be used safely without major difference in terms of technical success rate however the coil embolisation is superior in clinical success and rebleed rate while there is no ischemic complications with PVA. Minimal complication can be seen with coil embolisations.

**SESSION IV: Abdominal Imaging****F-10****Diagnostic Accuracy of 64-Slice Multi Detector Computed Tomography Scan in Detection of Point of Transition in Small Bowel Obstruction**

SIDRA HUMAYUN  
 MUHAMMAD IDRIS  
 TANVEER-UL-HAQ

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
 E-mail: sidra.humayun@aku.edu*

**INTRODUCTION:** Identifying a discrete point of transition between dilated and collapsed small bowel loops is key in making the diagnosis of small bowel obstruction and guiding further management. 64 MDCT is an important tool in detection of point of transition in cases of small bowel obstruction.

**OBJECTIVE:** To determine the diagnostic accuracy of 64-slice MDCT in detection of point of transition of small bowel obstruction by using surgical findings as gold standard.

**MATERIALS AND METHODS:** Fifty nine patients of SBO undergoing 64-Slice MDCT scan of abdomen and pelvis were enrolled in this study during a period of one year and ten months between June 2008 to Jan 2010. Point of transition between distended and collapsed small bowel loops were precisely determined on 64-slice MDCT in each case. MDCT findings were correlated with surgical findings obtained from medical records of patients. Data analysis was done on SPSS version 14. Sensitivity, Specificity, Positive and Negative predictive values and diagnostic accuracy of detection of point of transition were calculated.

**RESULTS:** Out of 59 patients 58 had complete small bowel obstruction and one had functional small bowel obstruction. CT was able to detect the point of transition of small bowel obstruction in 88% (52/59) of patients with sensitivity of 93%, specificity of 75% and accuracy of 91%. In addition MDCT was able to diagnose the cause of small bowel obstruction in 88% (46/52) of the cases in which POT was found on MDCT. While in those cases where POT was not found on MDCT the cause of SBO was found in only 29% (2/7) of patients.

**CONCLUSION:** 64- Slice MDCT is highly accurate in diagnosing the point of transition in small bowel obstruction with sensitivity 93% and specificity 75% thus helping the surgeon about exact area of the bowel to be operated.

**SESSION IV: Abdominal Imaging****F-11****Radiological Tumor Response in Hepatocellular Carcinoma to TACE**

RAHILA USMAN  
 MAHIRA YUNUS

*Department of Radiology, Sindh Institute of Urology and Transplantation, SIUT,  
 Karachi, Pakistan  
 E-mail: docrahila@yahoo.com*

**PURPOSE:** To determine the radiological tumor response in hepatocellular carcinoma to TACE.

**MATERIAL AND METHODS:**

Study design: Retrospective chart review

Setting: SIUT

Duration of study: 1st Jan 2009- 31st December 2009

Data collection: File coding system

Sample size: 28

Response to TACE was evaluated using Response Evaluation Criteria in Solid Tumors (RECIST) guidelines and degree of tumor necrosis (>90%, 50% - 89%, or <50%), which was analyzed by 64 slice helical CT done 1 month after the TACE.

**RESULTS:** On imaging analysis, complete response was found in only 1 patients (3.57%), partial response in 9 patients (32.14%), and stable disease in 13 patients (46.4%) whereas in 5 patients (17.8%) progressive disease was found. Tumor necrosis of greater than and equal to 90% was obtained in 9

patients (32.14%), tumor necrosis >50% in 12 patients (42.8%) and tumor necrosis of <50% was seen in 7 patients (25%)

**CONCLUSION:** In conclusion, TACE can be used as a palliative treatment tool for unresectable Hepatocellular carcinoma.

#### SESSION IV: Abdominal Imaging

##### F-12

#### Diagnostic Accuracy of Contrast Enhanced CT in Diagnosis of Colorectal Carcinoma

KAMRAN ILLAHI

MUHAMMAD AYUB MANSOOR

*Department of Radiology, Liaquat National Hospital, Karachi, Pakistan.*

*E-mail: dr\_ellahee@hotmail.com*

**OBJECTIVES:** To determine the diagnostic accuracy of contrast enhanced CT (CECT) in diagnosis of colorectal Carcinoma (CRC) using histopathology as gold standard.

**SUBJECTS AND METHODS:** A group of 30 patients with clinical suspicious (per rectal bleeding, altered bowel habits, fecal occult blood positive and low grade fever) of colorectal carcinoma were included in this study. All these patients underwent spiral CT with oral and intravenous contrast administration. Histopathology was subsequently done in all cases. The radiological findings on the CT scans were compared with the pathological findings. Out of these 30 patients 20 patients were male and 10 female. The age ranged from 30 to 80 years.

**RESULTS:** The results proved that spiral CT had 92% sensitivity and 50% specificity for assessment of CRC and it has accuracy of 90%.

**CONCLUSION:** With technological advances and improvement in imaging protocols the results for detection of CRC based on CT accuracy in clinically suspected patients, this study proves that spiral CT has a significant role in preoperative evaluation and subsequent management of colorectal carcinoma

#### SESSION IV: Abdominal Imaging

##### F-13

#### Diagnostic Accuracy of Magnetic Resonance Cholangio Pancreato-graphy in Evaluation of Obstructive Jaundice

ISHTIAQ AHMED

SYED MUBARAK ALI

*Department of Radiology, Sindh Institute of Urology and Transplantation, SIUT, Karachi, Pakistan*

*E-mail: mskghory@yahoo.com*

**PURPOSE:** The purpose of the study was to determine the diagnostic accuracy of MRCP in evaluation of obstructive jaundice taking ERCP as GOLD STANDARD.

**MATERIAL AND METHODS:** Initially 85 patients of obstructive jaundice were included in the study, out of which 8 were excluded. In 3 patients MRCP was not performed due to contraindication that is having cardiac pacemaker or recent surgery with prosthesis. Two patients had failed ERCP, 1 had refused for ERCP and 2 patients left against the medical advice. The final number of patients comprising the study was then 77. Out of these 77 patients, 41 patients

were females and 36 patients were males. The age ranges from 9 years to 80 years and the mean age was 47. After MRCP all patients went through ERCP within 48 hours.

**RESULTS:** MRCP accurately diagnosed 74 numbers of cases out of 77 with diagnostic accuracy of 96.1 %. Sensitivity of MRCP was found to be 97% and specificity was 75%. Diagnostic accuracy in early jaundice was 80 %. While diagnostic accuracy in developed jaundice was 98 % respectively.

**CONCLUSION:** This study proves MRCP has a significant role in evaluation of obstructive jaundice. Overall accuracy of MRCP in obstructive jaundice was 96.1% with sensitivity of 97 and specificity of 75 %. This study was also found to be accurate in evaluation of obstruction in early jaundice. By this ability MRCP can help in early diagnosis and by doing so, can significantly decrease morbidity and mortality.

#### SESSION IV: Abdominal Imaging

##### F-14

#### Radiological Features of Malignant Neoplasms in Renal Transplant Recipients: Siut Experience of 22 Years

MAHIRA YUNUS

*Department of Radiology, Sindh Institute of Urology and Transplantation, SIUT, Karachi, Pakistan*

*E-mail: mahiraabubakar@gmail.com*

**INTRODUCTION:** Post transplant malignancies are rare but serious complication after organ transplant. Their incidence being 1.4%-2.5% according to US Renal Data System (some studies have reported it to be as high as 15-25%) but when compared from the age- matched normal population, the frequency is increased to 100 times. As long term survival after organ transplant has improved, neoplastic complications are increasingly being discovered after transplantation. Immunosuppression clearly exposes to spectrum of malignancies particularly to post transplant lymphoproliferative disorder (PTLD), and PTLD leads to death in 50% of patients. In addition to immunosuppressants, Epstein Barr Virus (EBV) also plays very important role as its seronegativity in the recipient is responsible for 24x increased risk of PTLD.

**MATERIAL AND METHODS:** This study is carried out at SIUT and includes all transplanted patients (n=1816) from year 1986- 2008 (22 years) – 44 post TX patients (2.36%) developed malignancies after 5 months to 156 months after the transplantation (mean 66 months). All patients were males – immuno suppressants used in all these patients were cyclosporine, Azathioprine and corticosteroids.

Among 44 patients who developed Post transplant malignancies largest group of patients (27) were found to have lymphoma (25 had NHL, and 2 had Hodgkins disease), 10 patients had Kaposi sarcoma, 3 patients had skin cancer and while single patient each were found to have gall bladder carcinoma, AML and seminoma.

**CONCLUSION:** Radiological features of post transplant malignancies, their distribution as well as their frequency in Pakistani population is almost same as compared to international studies with some differences which are discussed in discussion.

## SESSION V: Neuro Imaging and Paeds F-15

### Doppler Sonography in The Investigation of Vascular Birthmark in Children

TAHIR MEHMOOD  
MUHAMMAD NAWAZ

*The Children Hospital & Institute of Child Health, Lahore, Pakistan*  
E-mail: khyberskp@yahoo.com

**PURPOSE:** To evaluate the diagnostic value of high-resolution sonography and Doppler in the vascular birthmarks in young infants.

**MATERIAL & METHODS:** Retrospective review of all the sonography performed in patients attending the surgical out door with complaint of vascular birth mark in "The Children Hospital & Institute of Child Health, Lahore" from June, 2009 to June, 2010. The studies were correlated with other forms of imaging studies (MRI, CT and angiography), pathology and clinical outcome.

**RESULTS:** Sonography is diagnostic in majority of haemangioma. The lesion is hypoechoic, lobulated with echogenic vascular septae and mostly confined to the subcutaneous compartment. Doppler study shows high flow in the supplying arteries and draining veins during the proliferative phase. Vascular malformation usually associated with focal trophic changes, involving the skin, subcutaneous fat, muscles and underlying skeleton. Capillary malformation has the corresponding hyperechoic focus in the subcutaneous fat without an abnormal increase of vascularity. Venous malformation shows compressible venous channels with slow venous flow signals. Lymphatic malformations present with macrocystic and microcystic forms. Avascular multilocular cystic mass is seen in the macrocystic form and focal irregular dermal thickening is seen in the microcystic form. Arteriovenous malformation or fistula show a high flow vascular channel with high velocity, low resistance arterial supply, arterialisation and turbulent venous return. Widespread vascular malformations require additional MRI, MRA or conventional angiography for the assessment the anatomy and extent of the lesions before surgery.

**CONCLUSION:** High resolution sonography with Doppler study is useful in the diagnosis of the underlying pathology of vascular birthmarks and essential for the management of this common clinical problem in children.

## SESSION V: Neuro Imaging and Paeds F-16

### Clinico-radiological Correlation in Functional Prognosis in Metastatic Cord Compression

AHMED BILAL  
NAJAM UDDIN

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan*  
E-mail: ahmedbilal39@hotmail.com

**INTRODUCTION:** EXTRADURAL spinal cord compression (ESCC) as a consequence of metastasis from various primary cancers is the most common type of malignant lesion affecting the spinal cord. The current approach to the diagnosis of ESCC depends on the recognition of early symptoms and signs of spinal cord compression with radiological support. Early diagnosis is critical, since the onset of spinal cord injury may be sudden, often progressing to irreversible paralysis in a period of hours.

**PURPOSE OF THE STUDY:** The study was to analyze the factors significant in functional prognosis of patient with malignant cord compression and establish the strength of clinico-radiological correlation.

**MATERIAL AND METHODS:** More than 50 patients presenting with functional sensorimotor decline in emergency room were enrolled in this study. All these patients had MR of spine followed by radiation treatment.

**DATA ANALYSIS AND RESULTS:** Included the frequency of tumors metastasizing to the spinal cord, relationship of degree of loss of motor function and MR findings, relationship of sphincter control with radiological imaging, mean survival, and functional outcome of patients undergoing radiation therapy.

**CONCLUSION:** Our study concluded that high clinical suspicion with early and accurate radiological diagnosis of cord compromise is necessary to improve functional outcome of patients with cord compression.

## SESSION V: Neuro Imaging and Paeds F-17

### Detection and Characterization of Intracranial Aneurysms: Magnetic Resonance Angiography Versus Digital Subtraction Angiography

RAFIA SHAHZAD

*Department of Radiology, Services Hospital, Lahore, Pakistan*  
E-mail: rshk18@hotmail.com

**OBJECTIVE:** To compare Magnetic resonance angiography (MRA) with Intra-arterial digital subtraction angiography (IA-DSA) in detection and characterization of intracranial aneurysms.

**MATERIAL AND METHODS:** This comparative cross sectional study was carried out in the Department of Diagnostic Imaging, Lahore General Hospital, Lahore from January 2007 to June 2007. Thirty patients presented with aneurysmal subarachnoid hemorrhage (SAH) and focal neurological signs were selected by convenience sampling. Three dimensional Time of Flight (3D TOF) MRA using Maximum intensity projection (MIP) was performed on all patients along with DSA. Results of 3D TOF MRA were compared with those of IA-DSA taking IA-DSA as gold standard.

**RESULTS:** Out of 30 patients 14 (46.7%) were male, 15 (53.3%) were females with mean age of 41 years. MRA detected 29 out of 30 aneurysmal lesions with sensitivity of 96.7%. Regarding characterization of aneurysms results of MRA were comparable to those of IA-DSA.

**CONCLUSION:** 3D TOF MRA technique showed a high sensitivity in this study, suggesting the possibility that this technique can be used as a non-invasive screening test for intracranial aneurysms and it can be a suitable alternative to IA-DSA as a primary examination for aneurysmal surgery.

## SESSION V: Neuro Imaging and Paeds F-18

### Repeat Cranial Computed Tomography in Patients with Mild Head Injury

SADAF NASIR

M. AYUB MANSOOR

*Department of Radiology, Liaquat National Hospital, Karachi, Pakistan*  
E-mail: dr.sadaf@live.com

**INTRODUCTION:** There is a controversy about the role of a routine repeat head computed tomography (CT) in patients with mild head injury and an initially abnormal cranial computed tomography. The current standard of care

for patients who present to the emergency department with head injury is to rapidly undergo a cranial computed tomography scan. Recently, studies have questioned the utility of the repeat CT scan in stable patients without neurological deterioration. Concerns about significant progression of intracranial bleed without clinical manifestation has fueled support for the need for the serial CT scan.

**METHODOLOGY:** It was a cross-sectional study done at Liaquat National Hospital, Karachi, from April 2009-March 2010. All patients admitted with mild head injury and had abnormal C.T scan were included in the study. Those patients who needed immediate surgery, had history of coagulopathy or had pneumocephalus were excluded from the study. A repeat cranial tomography was ordered at the discretion of the neurosurgical consultant, within 72 hours of the initial scan. Variable including age, gender, number of patients undergoing change in management as a result of repeat C.T scan were recorded. The utility of repeat C.T scan was assessed in terms of change in management based on repeat C.T scan.

**RESULTS:** Out of 110 patients none showed any change in management after repeat cranial tomography.

**CONCLUSION:** The routine use of repeat cranial tomography does not result in change in management in the absence of change in neurological status and can be omitted.

## SESSION V: Neuro Imaging and Paeds F-19

### Diffusion Magnetic Resonance Imaging in Acute Stroke

NOSHEEN AHMAD

SHAMA ASLAM

*Department of Radiology, Punjab Medical College/ Allied Hospital, Faisalabad, Pakistan*

*E-mail: drasimshaukat@yahoo.com*

**OBJECTIVE:** To demonstrate ischemic changes on diffusion magnetic resonance (MR) imaging (DWI & ADC) in patients with acute ischemic stroke having no recent ischemic lesion on CT brain.

**MATERIALS AND METHODS:** 95 patients with clinically diagnosed acute occlusive cerebrovascular disease and with no recent ischemic lesion on CT brain underwent diffusion MR imaging within 12 hours of symptoms onset. The study group was composed of 62 men and 37 women who ranged in age group from 42 to 60 years. All the scans were done on 1.5 Tesla whole body MR imager and T2W, FLAIR and diffusion images of 5mm slice were taken.

**RESULTS:** In 51(53%) patients, the diffusion MRI showed more conspicuous lesions, 23(24%) patients showed larger lesions than those were apparent on conventional MRI and 21(22%) showed the recent responsible lesions while conventional MRI showed age indeterminate ischemic lesions without disclosing the responsible recent ones.

**CONCLUSION:** Diffusion MRI is superior to conventional MR imaging in early detection of acute cerebral infarct up to 12 hours. Thus it plays a major role in the management of stroke and may be helpful in the selection of patients for thrombolysis by which ischemic brain tissue may be salvaged by safe and effective reperfusion therapy. Furthermore diffusion MR imaging helps in differentiating acute from chronic lesions.

## SESSION VII: Head and Neck Imaging & Nuclear Medicine F-20

### Radiological Pattern of Primary Head and Neck Cancers in Karachi. Multislice CT Scan Based Report From a Single Institution

AMTUL BAKHTIARI

SALEHA SHAHZAD

SYED MAHMOOD

RIZWAN AJMAL

*Karachi X-ray & CT Scan/ Ultrasound Centre, Karachi, Pakistan*

*E-mail: salehanwar@hotmail.com*

**PURPOSE:** To present a one year CT scan based audit of head and neck cancers presenting to Karachi X-Rays.

**MATERIAL AND METHODS:** CT scan based data for all primary head and neck cancers presenting between June 2009-2010 was retrospectively reviewed for demographics and radiological information related to primary pathology. Only biopsy proven cases were included. Post-operative and follow up scans were excluded.

**RESULTS:** Total number of patients fulfilling the inclusion criteria were 511. Mean age of patients was 52 years. Majority of patients (53%) were between 51-60 years of age and 67% were male. Most frequently identified primary site of origin was buccal mucosa in 37%, followed by larynx (31%), tongue (17%), alveolus (9%) and lip (6%). Most common tumor stage at the time of presentation was T3 and most common nodal stage was N2b. Significant contra lateral lymph nodes were involved in 59% of patients. Lung metastases were observed in 17% of patients.

**CONCLUSION:** We notice an alarming pattern of presentation at younger age and with advanced stage of disease when compared with the international literature. This to our knowledge is the largest CT scan based report of head and neck cancers from Pakistan.

## SESSION VII: Head and Neck Imaging & Nuclear Medicine F-21

### Evaluation of Patients with Dilated Cardiomyopathy by Rest Gated Myocardial Perfusion Scintigraphy to Differentiate Ischemic from Non Ischemic Etiology

M. SHEHZAD AFZAL

RAWAIL AHMED,\*

IMRAN ABDULLAH

MUHAMMAD BABAR IMRAN

ABUBAKAR SHAHID

*Punjab Institute of Nuclear Medicine (PINUM), Faisalabad, Pakistan*

*\*PIEAS University Islamabad, Pakistan*

*E-mail: mail@pinum.org.pk*

Dilated cardiomyopathy (DCM) is a common problem and it is very important to differentiate its ischemic cause from nonischemic for management and prognostic purposes.

**PURPOSE:** Evaluation of rest gated myocardial perfusion scintigraphy (GMPS) in patients with ischemic and nonischemic DCM, and to generate a computer program to differentiate the two entities by using the inputs of GMPS parameters.

**MATERIALS AND METHODS:** We studied 79 patients with DCM (37 in Group A and 42 in group B) with age of 49 years  $\pm$  14.36 years, 62 male and

17 female. Each group was subdivided into ischemic and nonischemic subgroups by using parameters as h/o documented myocardial infarction (MI), probability score for coronary artery disease (CAD) and angiography. In all patients, rest GMPS was conducted by injecting 20 mCi of  $^{99m}\text{Tc}$ -MIBI. Seventeen segment model was used to evaluate the perfusion and wall motion. Summed perfusion score (SPS), summed motion score (SMS), extent of perfusion abnormality (EPA), perfusion motion matched myocardium (PM-matched), perfusion motion mismatched myocardium (PM-mismatch) and perfusion motion normal (PM-normal) myocardium were calculated. Results of GMPS were compared between ischemic DCM and nonischemic DCM subgroups of group A by using unpaired sample student t-test and criteria were defined for differentiation of ischemic DCM from nonischemic on the basis of SPS, EPA and segment based perfusion motion analysis (SPMA). A computer program was generated by using these criteria, which was later validated in group B patients.

**RESULTS:** In group A patients, SPS and EPA were significantly higher in ischemic than non ischemic sub groups ( $45.95 \pm 9.85$  vs.  $22.7 \pm 3.51$   $P < 0.001$ , and  $63.90 \pm 17.44$  vs.  $22.75 \pm 9.9$   $P < 0.001$  respectively). PM-matched myocardium and PM-normal myocardium was significantly higher in ischemic than nonischemic ( $61.49 \pm 17.57$  vs.  $19.60 \pm 10.10$   $P < 0.001$  and  $23.26 \pm 14.10$  vs.  $12.94 \pm 12.81$   $P < 0.05$  respectively), while PM mismatched myocardium was almost 4 times higher in nonischemic than ischemic subgroup ( $68.23 \pm 12.53$  vs.  $14.43 \pm 15.37$   $P < 0.001$ ). These criteria were defined. 1. If SPS  $\geq 41.83$  (lower limit of 95% confidence intervals (CI) for ischemic subgroup) then it is ischemic, otherwise non ischemic. 2. If EPA  $\geq 56.61\%$  (lower limit of 95% CI for ischemic subgroup) it is ischemic otherwise non ischemic. 3. If PM-matched myocardium  $\geq 54.15\%$  (lower limit of 95% CI for ischemic subgroup) it is ischemic. If PM-mismatch  $\geq 61.89\%$  (lower limit of 95% CI for non ischemic subgroup) it is nonischemic. In others, if PM-normal myocardium  $> 19.42$  (upper limit of 95% CI for non ischemic subgroup) then ischemic otherwise nonischemic. Clinical validation of Computer program based on the above mentioned criteria in group B patients showed that accuracy of the method for defining criteria to differentiate an ischemic DCM from nonischemic was highest for analyses based on SPMA (88.09%), moderate for EPA (78.64%) and lowest for SPS (69.04%). Criteria based on segmental perfusion motion analysis showed a sensitivity of 89.65%, specificity of 84.61%, positive predictive value of 92.86%, and negative predictive value of 78.57%.

**CONCLUSION:** Our study showed that rest gated myocardial perfusion scintigraphy can reliably differentiate between ischemic DCM and nonischemic DCM. Clinical validation of our computer program showed that criteria defined by using segment based perfusion motion match-mismatch concept are the most accurate than criteria based on summed perfusion score and extent of perfusion abnormality.

## SESSION VII: Head and Neck Imaging & Nuclear Medicine F-22

### Ultrasonography Versus Radiography in the Diagnosis of Maxillary Sinusitis

MUHAMMAD NAWAZ  
TAHIR QADEER KHAN  
KHAWAJA KHURSHID AHMAD  
*Department of Diagnostic Radiology, Mayo Hospital, King Edward Medical University, Lahore, Pakistan*  
E-mail: khyberskp@yahoo.com

**PURPOSE:** To assess the concordance of ultrasonography with single Water's view plain film radiography.

**MATERIAL AND METHODS:** A total of 50 patients aged 01-12 years (mean age 5.6 years) were referred from the ear nose and throat clinic with suspected maxillary sinusitis. Each patient underwent plain film radiography consisting

of occipito-mental view. All patients then underwent US of both maxillary sinuses (100 antra total). This was performed using a 5 MHz curvilinear array probe. Patients were scanned sitting upright and the maxillary sinuses imaged in transverse and longitudinal planes using the anterior antral wall as a window.

Normality was indicated by the presence of only air in the antrum and the absence of echoes from the posterior wall. Abnormality was defined by the presence of echo from the bony posterior wall of the antrum. This indicates the presence of secretions that, unlike air, allow the transmission of echoes to and from the posterior bony wall.

Both the radiographs and US images were reported independently and the two groups were compared. The US images were reported as normal or abnormal. The radiographs were reported as normal, as demonstrating mild mucosal thickening (up to 6mm), moderate (6-12mm) or severe (12mm), or as complete opacification or an air fluid level.

**RESULTS:** In all, 46 of the 100 antra were reported as radiographically normal, with which US showed 100% agreement. The remaining 54 antra were reported as radiographically abnormal and US showed agreement in 42 cases (78%). The 12 antra (22%) which were reported as ultrasonographically normal showed mild to moderate mucosal thickening only on plain radiography, which has poor diagnostic significance in acute maxillary sinusitis.

**CONCLUSION:** We conclude that ultrasonography, which is non-ionizing, can provide an alternative to plain radiography in the initial investigation of maxillary sinusitis.

## SESSION VII: Head and Neck Imaging & Nuclear Medicine F-23

### Correlation of Tumor Thickness on MR Imaging with Results of Surgery in Patients with Tongue Cancer

USMAN BASHIR  
M. U. MANZOOR  
NAJAMUDDIN  
ZIA FARUQUI  
K. A. MUFTI

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan*  
E-mail: drusmanbashir@gmail.com

**PURPOSE:** Tumor thickness in oral tongue cancer is an important independent prognostic factor for local recurrence, nodal metastasis, and patient survival. An accurate preoperative assessment of tumor thickness is therefore essential for optimal treatment planning. The aim of our study was to evaluate the accuracy of MRI findings for the preoperative measurement of tumor thickness and compare it with final histopathology report.

**MATERIAL AND METHODS:** Fifty patients with stage T1 and T2 oral tongue cancer were included in the study. All patients underwent preoperative MRI of the tongue. After surgery, the glossectomy specimens were used to evaluate the tumour thickness. The radiologic tumor thickness was compared with the histologic tumor thickness using pre-defined proposed tumor thickness staging classifications.

**RESULTS:** The overall accuracy in assessment of tumor thickness staging using MRI was 83% respectively. The radiologic tumor thickness as measured on MRI had significant correlation with histologic tumor thickness ( $R = 0.93$ ).

**CONCLUSION:** MR images provide satisfactory accuracy for the measurement of tumor thickness and staging of oral tongue cancer. Preoperative MRI is recommended to assist in treatment planning for patients with this disease.

**SESSION VIII: Chest and CVS Imaging****F-24****An Audit of CT Guided Lung Biopsy-Safety and Diagnostic Yield**

IFFAT REHMAN

NAJAM UDDIN

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan**E-mail: dr.ir45@gmail.com*

**PURPOSE:** CT guided percutaneous lung biopsy is a relatively frequently performed procedure with considerable impact on patient management. However, it is associated with significant morbidity and mortality. The purpose of this audit was to look into our local practice and to compare it with the guidelines of British Thoracic Society in order to recognize areas with potential for improvement so as to reduce the rate of complications.

**MATERIALS AND METHODS:** Prospective data was collected of all CT guided lung biopsies performed in the radiology department from April 2010 to July 2010. 33 patients were included in the study. Out of these 21 were male and 11 were female. Age range was 36-83 years with mean age of 59.25 years. FNA was done in 27 patients, trucut in 1 patient and both were done in 4 patients.

**RESULTS:** Diagnostic yield was 93.75% (30 cases). Pneumothorax was documented in 3.1% (1 case) of patients which was managed conservatively. Mild parenchymal bleed was documented in 6.25% (2 patients). No patient suffered significant morbidity. Results were compared with BTS standard for CT guided lung biopsy; pneumothorax <20.5%, pneumothorax requiring chest drain <3.1% and death <0.15%

**CONCLUSION:** Our complication rate and diagnostic yield is within accepted limits. Audit of percutaneous CT guided lung biopsy should be continued at regular intervals in order to ensure adherence to BTS standards and to assess impact of this procedure on the radiology department.

**SESSION VIII: Chest and CVS Imaging****F-25****Role of Ultrasound in Dense Breast Tissue (BI Rads Breast Density Category 3-4) on Mammogram**

GHULAM QADIR BULEDI

*Department of Radiology, Liaquat University of Medical Sciences, Jamshoro, Pakistan**E-mail: buledirad@yahoo.com*

**OBJECTIVE :** To assess the role of high resolution ultrasound to find breast masses undetectable on high quality mammography in women with radiologically dense breast tissue BIRADS category 3-4 on mammogram.

**DESIGN:** Analytical study.

**PLACE & DURATION OF STUDY:** PNS Shifa hospital Karachi, from 1st October 2004 to 30th June 2005.

**PATIENT AND METHODS:** Hundred women were enrolled into the study. All these patients had BIRADS breast density category 3 and BIRADS breast density category 4 on mammogram they were negative.

**RESULTS:** The age range of patients was 30 – 60 years with mean age of 45

years. Out of 100 patients, 78 were related with HRT group and 22 patients with breast abnormality group. On ultrasound 58 patients had normal ultrasound (45 from hormone replacement therapy – HRT group and 13 from breast abnormality group.) as well as negative mammogram; remaining 42 patients were abnormal on ultrasound from HRT group and 9 from breast abnormality group.

**CONCLUSION :** Ultrasound can find unsuspected, mammographically occult masses especially dense breast (BIRADS category 3-4 on mammogram).

**SESSION VIII: Chest and CVS Imaging****F-26****Breast Ultrasound Elastography Imaging can Reduce Unnecessary Biopsy Rates?**

MUHAMMAD FIAZ

*Department of Radiology, Al Razi Healthcare, Lahore, Pakistan**E-mail: drfiazfeps@hotmail.com*

**PURPOSE:** Elastography is an ultrasound technique that facilitates the estimation of tissue elasticity, so we can differentiate benign from malignant lesions. Our study evaluates whether sonoelastography improves the differentiation of benign and malignant breast lesions. Cancerous lesions appear larger on elastography, and benign lesions appear smaller.

**MATERIALS AND METHODS:** Sonoelastography of focal breast lesions was carried out in 32 patients with subsequent histological confirmation. The technique involves pressing on the breast with an ultrasound probe to measure the firmness or resistance of the underlying tissue.

We focused on the sensitivity, specificity and the positive and negative predictive value of sonoelastography. We use Siemens S2000 ultrasound machine at our Al Razi Healthcare centre at Lahore. In addition we performed an analysis of the diagnostic performance, expressed by the pretest and posttest probability of disease, in BI-RADS-US 3 or 4 lesions as these categories can imply both malignant and benign lesions and a more precise prediction would be a preferable aim.

**RESULTS:** Sonoelastography demonstrated an improved SP (83 %) and an excellent PPV (85 %). Especially in dense breasts the SP was even higher

**CONCLUSION:** Our data demonstrates that the complementary use of sonoelastography definitely improves the performance in breast diagnostics. Elastography is not going to eliminate the need for biopsy in all cases. Elastography imaging performed during breast ultrasound is extremely helpful in evaluating breast lesions and selecting patients who need a biopsy.

## SESSION VIII: Chest and CVS Imaging F-27

### Duplex Doppler Ultrasonography in the Prospective Evaluation of Acute Urinary Obstruction: Can it Replace the Intravenous Urography?

MUHAMMAD ALI  
AMMAD HUSSAIN\*  
M. TAMEEM AKHTAR  
*Department of Radiology, Ziauddin Medical University Hospital, Karachi, Pakistan*  
*\*Bedford Hospital, UK.*  
*E-mail: docali80@hotmail.com*

**PURPOSE:** To determine the role of duplex Doppler ultrasonography (DDU) in patients with acute unilateral renal obstruction.

**SUBJECTS AND METHODS:** 161 patients with suspected renal colic due to urolithiasis were evaluated by duplex Doppler ultrasonography (DDU) followed by Intravenous urography (IVU). The mean intra arterial Resistive index (RI) and the difference of mean resistive index between both kidneys (delta RI) were determined for each person. RI value of  $\geq 0.70$  and delta RI value of  $\geq 0.06$  were taken as discriminatory threshold for obstruction. IVU results were considered the 'gold standard' against which renal DDU findings were compared.

**RESULTS:** IVU showed both kidneys to be normal in 51 patients and unilateral ureteric obstruction in 110 patients. The mean RI for obstructed kidneys was 0.67(0.048) which was significantly higher (p value<0.05) than mean RI of contralateral normal kidneys 0.59(0.04). The mean delta RI in patients with unilateral ureteric obstruction was significantly higher than that in patients with both kidneys normal, at 0.076(0.03) and 0.03(0.05) respectively. In patients with complete obstruction, sensitivity of RI and delta RI was 77.5% and 92.5% with a specificity of 84.3% and 90.1% respectively. In patients with partial obstruction the sensitivity of these values was 22.8% and 62.8% with a specificity of 84.3% and 90.1%.

**CONCLUSION:** Delta RI is more sensitive and specific than RI in acute renal obstruction. However, due to relatively low sensitivity for detection of partial obstruction they cannot replace IVU as standard imaging technique.

## PAPERS IN RESERVE (RES-F)

### SESSION I: Women and Genitourinary Imaging RES-F-01/(P)A-09

#### Predictive Values of Mammography and Ultrasound in 1039 Women attended a Breast Care Clinic at Kiran, Karachi

NOSHEEN FATIMA,\*  
MASEEH UZ ZAMAN,\*\*  
TEHSEEN FATIMA\*  
*\*Karachi Institute of Radiotherapy and Nuclear Medicine (KIRAN), Karachi, Pakistan*  
*\*\*Department of Radiology,*  
*Agha Khan University Hospital, Karachi, Pakistan*  
*E-mail: dr.nosheen\_fatima@yahoo.com*

**AIMS AND OBJECTIVES:** Mammography is an important screening tool which can effectively detect breast cancer earlier before it becomes palpable on breast self examination. The main objective of this study was to determine predictive values of mammography and ultrasound (US) in a local population.

**MATERIAL AND METHODS:** This prospective analysis included 1039 women (mean age  $39 \pm 15$  years) attended a breast care clinic for screening (539) or presented with history of palpable breast lump (500) at KIRAN. As per American Cancer Society (ACS) guidelines 2003, mammogram and US was performed. Fine needle aspiration cytology (FNAC) was subjected in 195 women with Breast Imaging Reporting And Data System (BIRADS) IV/V, high risk patients with III on mammography and with suspicious US findings, while women with BIRADS I, II and III were followed after  $12 \pm 3$  months.

**RESULTS:** Mammography was performed on 525 (51%) women and classified as BIRADS I in 218 (42%), II in 108 (20%), III in 37 (7%), IV in 122 (23%) and as V in 40 (8%). Remaining 514 (49%) women were subjected for breast US, among them 248 (48%) was absolutely normal, 239 (47%) revealed benign pathology and in 27 (5%) had suspicious findings. 181/195 (17% p<0.001) were diagnosed as breast cancer on FNAC. Positive predictive value (PPV) of BIRADS-V was 100%, IV 98%, III 33% and US had 100%. Negative predictive value (NPV) for breast cancer for BIRADS I-III and normal US was 100% on  $12 \pm 3$  months follow up.

**CONCLUSION:** We conclude that mammogram and US has high PPV for palpable lumps and high NPV for low risk patients. Furthermore, these two modalities are complimentary to each other.

### SESSION I: Women and Genitourinary Imaging RES-F-02/(P)A-14

#### The Frequency of Correct Findings on Computed Tomographic Angiography (CTA) Study of Renal Vascular Anatomy as Compared to Per Operative Findings in Live Related Kidney Donors

M. SHOAB KHAN GHORY  
MAHIRA YUNUS  
*Department of Radiology, Sindh Institute of Urology and Transplantation, SIUT, Karachi, Pakistan*  
*E-mail: mskghory@yahoo.com*

**PURPOSE:** The purpose of the study was to determine the frequency of correct findings on computed tomographic angiography (CTA) of renal vascular anatomy as compared with per operative findings in live related kidney donors.

**MATERIAL AND METHODS:** A group of 88 potential live donors were included in this study between 1 May 2009 to 31 October 09. As the donors were screened and selected by the protocols approved by the institution ethical committee, a separate ethical review of our data collection was not necessary. These donors were evaluated with helical CT angiography at radiology department SIUT and included men and women between the ages of 22-55 years. Prior to CTA they were investigated for conditions contraindicating renal donation, and then were referred to our department for imaging evaluation by CT angiography. CTA images were reviewed by a senior radiologist having more than 5 years experience. Findings were noted and patient followed after surgery. The per-operative findings were also noted and compared with the CTA findings.

**RESULTS:** Our study found the frequency of correct findings on computed angiography (CTA) study of the renal artery and venous anatomy of the live related kidney donors to be 98.9% and 95.4% respectively, comparable to the studies done previously in many parts of the world.

**CONCLUSION:** CTA is a minimally invasive procedure with a high frequency of correct findings as compared to the peroperative findings in depicting the vascular anatomy of the live related kidney donors. Its justification for usage in healthy donors is because of its minimally invasive, less time consuming and accurate nature.



## SESSION I: Women and Genitourinary Imaging RES-F-03/(P)A-15

### Diagnostic Accuracy of Ultrasound-guided FNA in Axillary Lymph Node Staging in Breast Cancer Patients

M. U. MANZOOR  
U. BASHIR  
I. YOUSAF  
N. UDDIN  
Z. S. FARUQUI  
K. A. MUFTI

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan  
E-mail: drusmanbashir@gmail.com*

**PURPOSE:** Primary breast cancer is one of the most prevalent cancer in developing world. Axillary lymphnode metastasis is one of the most important prognostic factors in devising the management of breast cancer patients. Current recommendations for axillary lymphnode staging includes physical examination, FNA or core biopsy of clinically node positive and sentinel lymphnode biopsy for clinically negative axilla. To evaluate sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and accuracy of ultrasound guided FNA in detecting lymph node metastasis in patients with primary breast cancer

**MATERIAL AND METHODS:** All previously untreated breast cancer patients registered in our hospital between Jan 2007 to Dec 2009 were included in the study. Physical examination was performed by either of two dedicated breast surgeons with over 10years' of experience each. All patients underwent mammography and ultrasound evaluation. Sonographically visible lymphnodes were categorized as benign, borderline and suspicious, using predefined criteria. All borderline and suspicious looking lymphnodes were subjected to ultrasound guided FNAC. Onsite cytopathologic evaluation was available to confirm adequacy of obtained specimen and to guide the need for further passes. Patients with benign or negative axillary ultrasound appearances underwent sentinel lymph node biopsy (SLNB) for final diagnosis. Similarly, negative ultrasound guided FNA results were also confirmed with SLNB. The only patient-group in whom SLNB was not performed, were those in whom US-FNA was positive and the results were considered true positive as such. Sensitivity, specificity, PPV, NPV and accuracy of the ultrasound and FNAC were calculated.

**RESULTS:** Of the 442 patients recruited into the study, 275 had positive axillary lymph node status and 167 had negative axillary lymph node status. The sensitivity, specificity, PPV, NPV and overall accuracy of ultrasound and ultrasound-guided FNA in detecting metastatic lymph nodes was 68%, 83%, 87%, 62%, 74% and 67%, 100%, 100%, 64% and 79% respectively.

**CONCLUSION:** US-guided FNA is a quick, reliable and least invasive procedure for axillary lymphnode staging in breast cancer patients. A cytologic result positive for metastatic adenocarcinoma is sufficient to replace SNB and to proceed to ALND.

## SESSION VII: Head & Neck Imaging RES-F-04/(P)D-18

### Value of Coronal and Sagittal Reformations in CT Evaluation of Acute Head Trauma in Pediatric Patients

KIRAN HILAL  
MUHAMMAD ZEESHAN  
WASEEM AKHTAR MIRZA  
ZAFAR SAJJAD

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: kiran.hilal@aku.edu*

**PURPOSE:** It has been proposed that routine axial CT images may not be

ideally suited for detecting abnormalities in the setting of acute head trauma in pediatric patients. This study is performed to evaluate whether coronal and sagittal reformations can improve detection of abnormalities in pediatric patients after acute head trauma.

**MATERIAL AND METHODS:** All pediatric patients who underwent their first non contrast CT head in the setting of acute head trauma were included retrospectively during a 12-month interval, June 2009-June 2010. Non contrast CT head images were acquired sequentially and axial 5 mm thick sections were obtained at 5 mm interval from skull base to vertex. Coronal and sagittal reformations were performed with 7 mm thick sections at 7 mm interval. Images were analyzed prospectively by two independent blinded readers and final diagnosis was made on the basis of follow up CT/clinical follow up.

**RESULTS:** Total 150 patients were included in the study and 45 had acute traumatic intracranial abnormalities. Out of these, 35 were present on axial scans. Coronal and sagittal reformations detected 22.2% (10/45) (P = 0.001) abnormalities not detected by axial images initially.

**CONCLUSION:** Coronal and sagittal reformations improve detection of intracranial abnormalities over axial images alone, in the setting of acute head trauma. Their use should be considered in the routine interpretation of non contrast CT head performed for the evaluation of acute head trauma.

## SESSION VII: Head & Neck Imaging RES-F-05/(P)F-05

### Atypical & Rare Presentation of Fungal Infections Encountered in Immunocompromised Patients in Armed Forces Bone Marrow Transplant Centre (AFBMTC)

MOBEEN SHAFIQUE  
PERVEZ SALEEM  
SHAHID MEHMOOD  
JAWAD JALIL  
QAMAR

*Department of Radiology, Armed Forces Bone Marrow Transplant Centre (AFBMTC) & CMH Rawalpindi, Pakistan  
E-mail: jawadjalil2002@hotmail.com*

**PURPOSE:** Purpose of the study was to study the different radiological patterns of fungal infections encountered in immunocompromised cancer patients & patients undergoing bone marrow transplant.

**MATERIAL & METHODS:** Immunocompromised patients in AFBMTC with suspicion of fungal infection and later on confirmation by laboratory were included in the study.

**RESULTS:** The commonest form of fungal infection encountered in immunocompromised patients was lung infection. However cases of disseminated soft tissue & visceral candidiasis involving subcutaneous tissue, spleen & kidneys were also rarely encountered. Aggressive fungal infection presenting as a large erosive & destructive masses causing massive bone destruction were also observed.

**CONCLUSION:** Fungal infections including aspergillosis and candidiasis are not uncommonly encountered in immunocompromised patients. Radiologist should be aware of the wide spectrum of radiological pattern for an early diagnosis and effective management of life threatening fungal infection in an immunocompromised background.

## **POSTERS (P)**

### **A: Women and Genito Urinary Imaging (P)A-01**

#### **Pelvic Fibrolipomatosis: Case Report of Rare Non Malignant Entity**

ANEETA GHULAM MUHAMMAD  
M. SALMAN  
GUL-E-KHANDA  
SAIMA IMRAN  
TARIQ MAHMOOD

*Department of Radiology, Jinnah Postgraduate Medical Centre, Karachi, Pakistan*

*E-mail: aneetamuhammad@yahoo.com*

**INTRODUCTION:** Pelvic fibrolipomatosis is a rare entity in which there is non malignant overgrowth of adipose tissue with minimal fibrosis and inflammatory components compressing soft tissue structures within pelvis, the associated complications are ureteral and IVC obstruction. Its incidence is 0.6-1.7 :100,000

**CASE SUMMARY:** We report a case of 56 yrs old male who presented with complaints of recurrent urinary tract infections, hematuria and swelling of lower limb. Clinically he was provisionally diagnosed as chronic nephritis secondary to recurrent urinary tract infections but the cause was not obvious. Ultrasound findings were inconclusive. He got CT abdomen with I/V contrast, which revealed extensive lower abdominal and pelvic fibrolipomatosis causing stretching and narrowing of ureters, IVC, rectosigmoid colon and urinary bladder leading to bilateral hydronephrosis, hydronephrosis and edema of abdominal wall and upper thigh.

### **A: Women and Genito Urinary Imaging (P)A-02**

#### **Functional Status of Thoracic Kidney**

OWAIS QADEER GILL  
AJUM MEHDI  
MUHAMMED IQBAL

*Department of Radiology, PINUM Hospital, Allied Hospital, Faisalabad, Pakistan*

*E-mail: drowaisgill@gmail.com*

**INTRODUCTION:** Congenital anomalies of the urinary system affect 10% of the population. Thoracic renal ectopia is a rare developmental abnormality and is the rarest form of renal ectopia. It is usually asymptomatic and discovered incidentally.

**CASE SUMMARY:** A 45 year male, known hypertensive was referred for evaluation of deteriorating renal function on DTPA renal scan. On ultrasound, left kidney was not found anywhere in the abdomen. That patient underwent DTPA renal scan for functional renal evaluation. Dynamic images showed a focus of abnormal radiotracer accumulation in the left hemithorax just adjacent to the heart which was showing radiotracer uptake and clearance parallel to the normally located right kidney. That patient was then reassessed on DMSA renal scan and CT scan which confirmed that left kidney was located in the left hemithorax in the posterior mediastinum. Both hemidiaphragms appeared normal. Moreover relative function of thoracic kidney calculated on DMSA renal scan was 20%. CXR of the patient also showed opacity at the same site in the lower part of left hemithorax.

**DISCUSSION/CONCLUSION:** Ectopic intrathoracic kidney is the least

frequent of all renal ectopias. Mostly is asymptomatic and diagnosed as an incidental finding. It does not exist in association with diaphragmatic hernia mostly. Most of these patients have a normal diaphragm with an intrathoracic but extrapleurally located kidney. Embryologically, kidney originates at the level of L4 vertebra. In a full term fetus, kidney has already ascended up to the level of L1 or T12 vertebra. The low incidence of right renal ectopia is explained by the early fusion of pleuro-peritoneal channel on the right side and by the presence of liver as a barrier. Kidneys in ectopic location are often dysplastic and non-functional.

### **A: Women and Genito Urinary Imaging (P)A-03**

#### **Xanthogranulomatous Pyelonephritis Presenting as Renal Sinus Tumor**

M. OMAR AFZAL  
SALEHA SHAHZAD  
HAJI HAROON

*Karachi X-Ray & CT Scan/ Ultrasound Centre, Karachi, Pakistan*

*E-mail: salehaanwar@hotmail.com*

**INTRODUCTION:** Xanthogranulomatous pyelonephritis (XGPN) represents an unusual suppurative granulomatous reaction to chronic infection. The disease may present either in the diffuse form or less commonly as a focal process which is almost impossible to differentiate from renal malignancy.

**CASE SUMMARY:** A 60 years old male presented with left flank pain and dysuria. His ultrasound abdomen revealed a huge solid mass in left lumbar region measuring 11 X 10 cms with significant vascularity on color doppler. Patient was investigated with a CT scan abdomen on a 16 slice CT scanner, which revealed large heterogeneous, well defined mass arising from left renal pelvic sinus. Mass was not infiltrating the renal parenchyma or pelvicalyceal system and appeared limited to Gerota's fascia. The mass measured 9 X 10 X 13 cms, raising the possibility of renal sinus tumor. A tentative diagnosis of a renal sinus tumor was made, and the patient underwent nephrectomy. Histology revealed findings of XGPN.

Two forms of XGPN are described; diffuse and the rare focal form. It has been termed the great imitator because it may be misdiagnosed as a renal neoplasm, especially the focal form. On ultrasound renal parenchyma is replaced by hypochoic masses, which frequently have low-level internal echoes. Renal cortical tissue is thinned and may have scattered cystic collections that represent abscesses. CT scan typically shows renal parenchyma to be destroyed and replaced by low-attenuating masses with occasional fine calcifications and sometimes gas collections in intrarenal abscesses. The Gerota's fascia is invariably thickened. Here, we present the CT imaging findings of a patient with a XGPN presenting as a renal sinus mass.

### **A: Women and Genito Urinary Imaging (P)A-04**

#### **“Plexiform Neurofibroma of the Uterus: A Rare Manifestation of NF1”**

RAFIA SHAHZAD  
FARHANA YOUNAS

*Department of Radiology, Services Hospital, Lahore, Pakistan*

*E-mail: rshk18@hotmail.com*

**INTRODUCTION:** The female genital system is rarely affected in Von Recklinghausen neurofibromatosis with only 75 cases reported in the literature.

The vulva is the most frequent genital location, but vaginal, cervical, uterine, and ovarian neurofibromas have rarely been reported. We present a case of plexiform neurofibroma of uterus in a young girl.

**CASE SUMMARY:** An eight year old girl presented with 15 days history of abdominal pain and distention. She consulted some private hospital where USG was performed and pelvic mass was found. Patient referred to Radiology Department of our hospital and underwent USG, Barium enema and CT scan. Barium Enema revealed a pelvic mass causing posterior displacement of rectum and sigmoid with slight irregularity of anterior wall of rectum. CT scan shows heterogeneously enhancing mass displacing urinary bladder and rectum associated with right sided hydronephroureter.

Subsequently MRI was performed which revealed an inhomogeneous signal intensity mass with lobulated margins involving uterus and extending into vagina and labial folds. The mass was having areas of target like appearance on T2-weighted MR images, with central low signal intensity and peripheral high signal intensity. Based on these imaging features, diagnosis of plexiform neurofibroma was made. Patient was called for detailed history and physical examination. Cafe-u-lait spots were found on back of patient. Family history was positive for similar spots.

Patient was followed and surgical biopsy also proved that mass was plexiform neurofibroma.

## **A: Women and Genito Urinary Imaging (P)A-05**

### **Wilm's Tumor in Horseshoe Kidney**

RABIA TALIB  
SHABBIR NAEEM  
MAHIRA YUNUS  
S. A. ALI ANWAR NAQVI  
S. ADIBUL HASAN RIZVI

*Department of Radiology, Sindh Institute of Urology and Transplantation, SIUT, Karachi, Pakistan*  
*E-mail: drrabiazeeshan@yahoo.com*

**OBJECTIVE:** The horseshoe kidney is the most common type of renal fusion anomaly. It consists of two distinct functioning kidneys on each side of the midline, connected at the lower poles by an isthmus of functioning renal parenchyma or fibrous tissue that crosses the midline of the body. Recent studies postulate that the abnormal fusion of tissue associated with the parenchymatous isthmus of some horseshoe kidneys is the result of a teratogenic event involving the abnormal migration of posterior nephrogenic cells, which then coalesce to form the isthmus. This teratogenic event may also be responsible for the increased incidence of related congenital anomalies and of certain neoplasias, such as wilms tumor and carcinoid tumor associated with the isthmus of the horseshoe kidney. Wilms tumor (nephroblastoma) accounts for 28% of malignant lesions in horseshoe kidney. The relative risk of Wilms tumor is increased 2-fold. Half of these arise from the isthmus. Cystic partially differentiated nephroblastoma is a rare cystic variant of Wilms tumor (1%) with unique pathologic and clinical characteristics.

**CONCLUSION :** We report a case of 5 year old male child who presented with abdominal distension and fever. His CT was done that showed continuation of lower pole of kidneys with each other representing horseshoe kidney with a huge mass replacing most of right kidney and medial portion of the left component of horseshoe kidney. This mass has larger cystic component containing enhancing solid area with necrotic component, septations and specks of calcification. Paraaortic lymphadenopathy was also seen. D/D includes atypical wilms tumor in horseshoe kidney and teratodermoid tumor. Diagnosis was confirmed by biopsy that showed it to be classical wilms tumor.

## **A: Women and Genito Urinary Imaging (P)A-06**

### **Kaposi Sarcoma in Renal Transplant Recipient**

FARID IQBAL  
RABIA TALIB  
MUBARAK ALI  
S. ANWAR NAQVI  
S. ADIBULHASSAN RIZVI

*Department of Radiology, Sindh Institute of Urology and Transplantation, SIUT, Karachi, Pakistan*

*E-mail: muhammadfarid585@hotmail.com*

**OBJECTIVE:** Kaposi's sarcoma is one of the most common post transplant malignancies accounting for up to 80% of all malignancies in developing countries. A variety of factor appears to contribute to the development of KS including Genetic factors, Sex hormone, Immunosuppressant and Oncogene Viruses. Several studies have shown that in comparison to Colorectal and Breast cancer, KS is more prevalent in transplant recipients. It should be noted that this tumor may be cured if the immunosuppressant's are discontinued or reduced in these patients.

KS has a multi-centric origin and is characterized by vascular and fibroblastic proliferation. Skin, conjunctiva or oropharyngolaryngeal mucosa are involved in 58% of transplant patients with KS; as for visceral disease mainly involving the GIT, Lung & Lymph nodes, they are reported to be present in about 42% of the patients.

The cause of post transplant KS remains unknown. Oncogenic viruses of the herpes type are believed to play an important etiological role. In kidney recipients, the definite associating role of other viruses such as cytomegalovirus, the most common source of opportunistic infection, is not yet clear.

**CONCLUSION:** We report a case of 40 year old male who underwent renal transplantation in June 2008. He presented with shortness of breath. His chest X ray showed bilateral pulmonary infiltrates. His CT chest showed bilateral patchy infiltrates scattered throughout both lung fields, more marked in lingular and right middle lobe. A few enlarged lymph nodes are seen in pre and paratracheal region and in the region of carina. D/D included tuberculosis and Kaposi sarcoma. His CT guided lung biopsy confirmed it to be Kaposi sarcoma.

## **A: Women and Genito Urinary Imaging (P)A-07**

### **Septate Versus Bicornuate Uterus: Role of Volumetric MR Imaging**

SHAISTA AFZAL  
IMRANA MASROOR  
ZAHID ANWAR  
GULNAZ SHAFQAT

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan*  
*E-mail: shaista.afzal@aku.edu*

**INTRODUCTION:** The essential component of Gynaecologic MRI is T-2 weighted sequence due to its superb ability to define detailed anatomy. The routine T2 scan allows cross sectional imaging in any desired plane. The drawbacks to this approach are difficulty in accurately aligning the imaging planes, atypical anatomy like multiple uterine horns may be confusing etc. Volumetric (three dimensional) T2 weighted technique with near isotropic resolution is a significant advance in MRI. Two dimensional images can be reformatted retrospectively from the single high resolution volumetric data set in multiple arbitrary planes. This results in more accurate arrangement of images relative to intricate anatomy, faster examination and the acquisition of

thinner slices for depiction of improved details. In this case report we describe the role of volumetric imaging in the diagnosis of two cases of septate uterus.

**CASE REPORT:** The first case is of a 32 year old female married for 3 years with history of primary infertility. Her ultrasound showed anteverted uterus with fibroids and evidence of bifid endometrial echo. To differentiate between septate /bicornuate uterus MRI was done. The conventional MRI images were confusing due to the presence of fibroids in the region of fundus obscuring detail but Volumetric (three dimensional) imaging clearly showed the absence of fundal indentation and the intercornual angle of less than 90 degree.

The second case is of a female with history of secondary infertility and repeated abortions. Although the absence of uterine indentation was evident on routine T2 weighted images the partial septum was seen on volumetric imaging only.

**CONCLUSION:** In cases of mullerian duct abnormalities, in addition to conventional MRI, volumetric /three dimensional imaging should be performed for improved accuracy.

### **A: Women and Genito Urinary Imaging (P)A-08**

#### **Hysterosalpingographic Evaluation of Primary and Secondary Infertility**

SUBBOHI ARSLAN  
SALEHA SHAHZAD  
HAJI HAROON  
ADIL ANWER

*Karachi X-Ray & CT Scan/ Ultrasound Centre, Karachi, Pakistan  
E-mail: salehaanwar@hotmail.com*

**PURPOSE:** To determine the pathological patterns of fallopian tubes and uterus on HSG examination.

**MATERIALS AND METHODS:** Two years retrospective charts review of patients referred to our centre for HSG evaluation of infertility, from July 2008 to July 2010.

**RESULTS:** A total of 4108 hysterosalpingograms were carried out at our centre during the study period. Out of these, 1999 (48.6%) were primary infertility cases while the 2109 (51.3%) were of secondary infertility. Mean age of presentation for primary infertility was 30 years and for secondary infertility was 35 years. Bilateral free peritoneal spill was noted in 60% of cases. Unilateral tubal blockage was present in 15% and bilateral tubal blockage in 10% of patients. Bilateral hydrosalpinx was present in 10% of patients and unilateral loculated spill was found in 5% of patients with primary infertility. Patients with uterine congenital anomalies were also evaluated and it was found that the frequency of bicornuate uterus was 4%, unicornuate uterus was 2% and uterine didelphys was 0.2% in the present series.

**CONCLUSION:** Infertile patients who underwent HSG were mostly in older age group with secondary infertility being slightly more common. Most of the patients with primary infertility had normal HSG examination. To our knowledge this is the largest data for HSG to be presented from Pakistan.

### **A: Women and Genito Urinary Imaging (P)A-10**

#### **Pattern of Distant Metastasis on Radiological Modalities in Primary Staging of Breast Cancer Patients at Kiran Hospital**

TEHREEM RAZA  
JAVED MEHBOOB  
NOUSHEEN FATIMA  
MASEEH-UZ-ZAMAN  
AKHTAR AHMED  
TEHSEEN FATIMA

*Department of Radiology, Karachi Institute of Radiotherapy & Nuclear Medicine (KIRAN), Karachi, Pakistan  
E-mail: tehreemraza\_82@hotmail.com*

**AIMS & OBJECTIVES:** Radiological modalities are most frequently used in screening of patients with breast cancer. Our aim of this study is to observe the pattern of distant metastasis on radiological modalities in primary staging of breast cancer patients at KIRAN hospital.

**MATERIALS & METHODS:** This was retrospective study including 385 newly diagnosed patients of breast cancer over period from 1st Jan 2009 to 1st Jan 2010 registered at oncology unit of KIRAN Hospital. Chest X-ray, ultrasound abdomen and bone scan were performed in all patients while CT scan and MRI were performed in selected patients of 250 and 16 respectively.

**RESULTS:** We found distant metastasis at the time of primary diagnosis in 122(32.3%) patients. Among them metastasis at multiple sites were found in 48(12%) patients, bone metastasis in 30(8%) on bone scan, liver metastasis in 21(5%), lung metastasis in 17(4.4%) and brain metastasis in 6(2%) patients on different radiological modalities.

**CONCLUSION:** Based on our data it is concluded that significant number of patients in our society presented with stage III and stage IV disease.

### **A: Women and Genito Urinary Imaging (P)A-11**

#### **Computed Tomographic Findings in Emphysematous Pyelonephritis with and without Obstructive Uropathy in Uncontrolled Diabetics**

SAIMA ABDUL GHAFAR  
MUHAMMAD AQEEL BABRI

*Department of Radiology, Ittefaq Hospital (Trust), Lahore, Pakistan  
E-mail: shaymarana@yahoo.com*

**PURPOSE:** Emphysematous pyelonephritis is a rapidly progressive and life threatening infection with gas presence in the kidney, perinephric space, and/or urinary collecting system that carries a bad prognosis. We report six cases of patients with emphysematous pyelonephritis diagnosed on plain CT pyelography in period of last two months.

**MATERIALS AND METHODS:** This is a case study including 6 patients (3 women and 3 men) aged from 26 and 65 years. Five of six patients had diabetes and four of them presented with urinary symptoms and one with history of recent missed abortion. All of them underwent ultrasound and plain computed tomography (CT) scan pyelography. Diagnosis made on plain computed tomography (CT) scan pyelography

**RESULTS:** Five of six patients (83%) had obstructive uropathy in form of ureteric stone in four patients (66.6%), and a stricture in one patient (16.6%). One patient (16.6 without obstructive uropathy) had history of recent missed

abortion. An associated gas bubbles seen in urinary bladder (non-catheterized) in two patients. Gas is seen confined to pelvi-calyceal system in two patients (33.3%), perinephric space in two patients (33.3%) renal parenchyma and perinephric space in two patients (33.3%). The left sided pleural effusion is seen in two patient (33.3%) with parenchymal and perinephric involvement.

**CONCLUSION:** Emphysematous pyelonephritis seems no more rare clinical entity in high risk patients such as diabetics associated with obstructive uropathy presenting with persistent upper urinary tract infection that does not resolve with proper antibiotic treatment. The role of imaging is paramount in the management of cases of EPN, if an early diagnosis is to be made and a potentially devastating outcome is to be avoided.

### A: Women and Genito Urinary Imaging (P)A-12

#### Role of Contrast-Sono-Hystero-Salpingogram and Sono-Saline-Hystero-gram: Prospective Study and 10 Year Experience

TANVEER ZUBAIRI

*Tanveer Ultrasound Clinic, Karachi, Pakistan  
E-mail: tanveerzubairi@hotmail.com*

**OBJECTIVE:** X-ray Hysterosalpingogram is used for evaluation of tubal patency in infertility. However, it involves radiation dose and has limited role in intrauterine filling defects. Ultrasound is a safe imaging modality that can be used for the evaluation of intrauterine masses, such as polyps and fibroids using contrast or saline. We conducted a funded prospective study to determine the usefulness of Contrast Sono-hystero-salpingogram. We also will present our experience of 10 years with Contrast Sono-hystero-salpingogram and Sono-saline-hystero-gram.

**MATERIAL AND METHODS:** Prospective trial funded by Schering was conducted from March 2000 to 2001 in which 100 patients were enrolled for Contrast Sono-hystero-salpingogram. Between 2001-2006 more than 300 procedures of Contrast Sono-hystero-salpingogram were performed. Due to non-availability of contrast since 2006 we are restricted to Sono-hystero-gram using saline. We have performed over 200 procedures using Sono-saline-hystero-gram. We have retrospectively evaluated 150 (75%) of these as follow-up was available.

**RESULTS:** In the funded Contrast Sono-hystero-salpingogram study of 100 patients 35 (35%) had blockage of unilateral or bilateral fallopian tube. In the Sono-saline-hystero-gram group of 150 patients 75 had endometrial polyps, 54 fibroid polyps, 11 endometrial hyperplasia and 10 had synechiae.

**CONCLUSION:** Contrast Sono-hystero-salpingogram is a useful tool for detection of tubal blockage. Sono-saline-hystero-gram is also a very simple office procedure. It gives convincing results especially in fibroid polyps where it guides gynaecologists to which route should be taken for its removal i.e. laprotomy or just a D&C.

### A: Women and Genito Urinary Imaging (P)A-13

#### The Endovascular Management of Visceral Artery Aneurysms: A 5 Year Experience at a Tertiary Care Centre

YASIR JAMIL KHATTAK

RANA SHOAI B

TARIQ ALAM KHAN

RAZA SAYANI

BASIT SALAM

TANVEER UL HAQ

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: yasirjamil@aku.edu*

**PURPOSE:** The purpose of our study was to review a 5-year experience at

our institution with endovascular embolization of visceral artery aneurysms.

**MATERIAL AND METHODS:** Between January 2005 and August 2010, 31 patients were identified with a diagnosis of visceral artery aneurysm (20 men; mean age 54.61 years, range 22–71) of varying locations and etiologies: The anatomical involvement concerned eight regions: 16 renal, 9 hepatic, 2 superior mesenteric, and a solitary aneurysm arising from each of splenic, celiac, cystic, gastroduodenal and pancreaticoduodenal arteries each. Transcatheter coil embolization was the treatment of choice in majority of patients.

**RESULTS:** 26 patients presented symptoms attributable to their aneurysms, while 5 patients were asymptomatic. Technical success by exclusion of aneurysm was achieved initially in 29 (93.54%) patients. In one patient having a superior mesenteric artery branch aneurysm, endovascular embolization was unsuccessful and remained perfused. Repeated embolization did not exclude the aneurysm. 25 pseudoaneurysms were thrombosed with coil embolization alone. In 2 cases coil embolization along with gelfoam was employed. Metallic stent was also used in one case with hepatic artery aneurysm. NBCA embolization was needed in three patients. In one case a small splenic infarction occurred. The dominant indication for angiography in patients having renal artery aneurysms was hematuria while the common presenting feature of patients with hepatic artery aneurysm was shock (44.44%) or dropping hemoglobin levels. Long-term follow-up revealed excellent results after an average 41 months (range 10–60) with recurrence in one case after 10 months.

**CONCLUSION:** Aneurysms and pseudoaneurysms of visceral arteries require emergent diagnosis and treatment because of potential risk of rupture and resultant high rate of death associated with them. Embolotherapy with various embolizing materials is an efficient and safe treatment of choice regardless of etiology, location, or clinical presentation.

### A: Women and Genito Urinary Imaging (P)A-16

#### Outcomes of Bracketing Wires for Preoperative Needle Localisation

DARAKHSHAN KANWAL

SAIMA HAFEEZ

GULNAZ SHAFQAT

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: darakshan.kanwal@aku.edu*

**PURPOSE:** The main purpose of this study is to evaluate the outcomes of placing bracketing wires during preoperative needle localisation.

**MATERIALS & METHODS:** We retrospectively reviewed mammograms of 40 lesions who underwent preoperative needle localization and later on surgical excision of the lesion. The lesions were classified according to Breast Imaging Reporting and Data System (BI-RADS) system. Medical records, imaging studies and histopathologic findings were also reviewed.

**RESULTS:** Of these 40 lesions, the median lesion size was 2 cm. The radiographic findings were microcalcifications only in 8, soft tissue density only in 28 and both microcalcification and soft tissue density in 4 lesions. The median number of wires placed was 3. Surgical histologic findings were carcinoma in 18 lesions (45%), atypical hyperplasia in 6 lesions (15%) and benign in 16 lesions (40%). Clear histologic margins were obtained in 18 (90%) of 20 carcinomas.

**CONCLUSION:** The bracketing wires were used in preoperative needle localisation of larger lesions or those that were highly suspicious of malignancy. Our experience suggest that placement of bracketing wires may assist the surgeons in achieving complete excision of lesion.

## **B: Musculoskeletal Imaging (P)B-01**

### **The Clinical Spectrum of Bucket Handle Tear How Does Imaging Help?**

MUHAMMAD ARIF-UZ-ZAMAN  
NADIRA ABID  
MUHAMMAD SALMAN  
TARIQ MAHMOOD

*Department of Radiology, Jinnah Postgraduate Medical Center, Karachi, Pakistan*

*E-mail: m\_arif1976@hotmail.com*

**INTRODUCTION:** Bucket handle meniscus tears constitute about 10% of all meniscal tears. A BHT is a longitudinal tear of the medial or lateral knee meniscus that extends from the posterior horn toward the anterior horn. It usually precipitated by trauma, and up to 40% are associated with an ACL injury. Medial meniscus tears account for 60% to 90% of BHTs and there are reports of medial and lateral BHTs in the same knee. The radiographic diagnosis of a BHT is important because it usually require arthroscopic or surgical repair to prevent degenerative change. Since the plane of a BHT is parallel to standard sagittal MRI views, the diagnosis relies more on altered meniscal morphology rather than on changes in signal intensity. Two classic secondary MRI signs of a BHT are the double PCL sign and the absent bow-tie sign.

When the various radiographic signs are combined, the overall sensitivity and specificity of MRI for a BHT exceeds 90%.

**CASE SUMMARY:** We reported a case series of 4 patients with age range of 20 to 35 years who presented with history of trauma to their knee joint in the department of radiology Jinnah Postgraduate Medical Centre Karachi in a period of 10 months i-e from March 2009 to Dec 2009. All the patients went through MRI examination of their knees and were found to have bucket handle tear. 3 of these patients presented with bucket handle tear of medial meniscus and 1 with bucket handle tear involving the anterior horn and body of lateral meniscus. All of them are associated with moderate joint effusion.

**CONCLUSION:** Magnetic Resonance Imaging (MRI) is the most widely used non invasive test for assessing intra articular injuries of the Knee.

## **B: Musculoskeletal Imaging (P)B-02**

### **Primary Care Referrals for Lumbar Spine Radiography: Are they Justified?**

MARYAM IFTIKHAR  
MARYAM TAYYAB  
KASHIF SHAZLEE  
ZUNAIRA NOOR

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan*

*E-mail: marymalik89@gmail.com*

**AIM:** Lumbar Spine radiography contributes 15% of total radiation dose received by patients attending imaging departments. It has been observed that primary care referrals for lumbar spine radiography often do not provide adequate clinical information. This research aims to see the sufficiency of provided clinical information on request forms to justify the radiographic examination for lumbar spine.

**MATERIAL AND METHODS:** A retrospective study was conducted on 100 patients, who were referred for lumbar spine imaging during three months. Request forms of patients aged between 5-85 years were pulled out from the

record. It was assessed that either adequate clinical information were provided on request forms to justify the radiological examination properly. Provided indications were compared with Royal College of Radiologists Guidelines for lumbar spine radiography.

**RESULTS:** 44 % of request had no clinical information or history, whereas 56% of request forms had clinical history mentioned. Out of 56% of request forms provided with clinical history 56 % of radiographs were appropriately indicated and justified for imaging while 44% of lumbar spine X-rays were un-justified.

**CONCLUSION:** Adequate clinical information and specific question on request forms for lumbar spine radiography can help to justify the radiographic examination and ultimately can minimize the radiation burden on patients by avoiding un-justified lumbar spine imaging.

## **B: Musculoskeletal Imaging (P)B-03**

### **How Well do we Perform Lateral Cervical Spine X-rays?**

MUEEZ U DIN  
MEMOONA MIAN  
NAJAMUDDIN

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan*

*E-mail: muez.sheikh@gmail.com*

**BACKGROUND:** A good lateral cervical spine radiograph is critical for accurate diagnosis of C-spine pathologies. It is widely accepted that a significant number of injuries are missed in lateral cervical spine x-rays because of poor visual quality, especially those injuries occurring at the craniocervical and cervicothoracic junctions. One of the criterions for adequate imaging is the visualization of the C7-T1 junction.

**MATERIAL AND METHODS:** 100 consecutive lateral C-spine radiographs were retrospectively reviewed to check the visualization of entire C-spine, in particular the cervico-thoracic junction. An adequate lateral C-spine has been defined as an unrotated view demonstrating the spine from the occiput to the upper border of T1. We hypothesized that in 100% of the lateral cervical spine radiographs, the cervical spine is adequately visualized or if not the report should state so and advise re-imaging or additional views as need be.

**RESULTS:** Only 65 radiographs visualized the complete cervical spine without any overlying soft tissue/bony shadows. Remaining 35% radiographs had shoulder shadows projecting over them, restricting the visualization of lower cervical vertebrae. None of the radiologists mentioned the inadequate visualization of C-spine in their reports; neither suggested any additional views.

**CONCLUSION:** There is room for further improvement in the current radiographic institutional practice for the lateral C-spine imaging. Proper radiographic techniques for the visualization of lower cervical vertebrae should be used, which include applying downward traction on the arms to pull shoulders out of view and use of anti scatter grid and filter combinations.

**B: Musculoskeletal Imaging****(P)B-04****Spinal Changes in Ankylosing Spondylitis on MRI in Patients Presenting at AKUH**ROHANA NAQI  
MUHAMMAD AZEEMUDDIN*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: rohana.naqi@gmail.com*

**INTRODUCTION:** Seronegative spondyloarthritis is a general term. Five subgroups of spondyloarthritis are distinguished: Ankylosing spondylitis, Reactive arthritis (Reiter syndrome), Psoriatic arthritis, Arthritis associated with inflammatory bowel disease (Crohn's disease or ulcerative colitis), and undifferentiated spondyloarthritis. Extra-axial involvement such as uveitis, calcaneal enthesitis, or peripheral arthritis occurs in all five subgroups. Ankylosing Spondylitis (AS) is a chronic inflammatory disease that affects young patients. The disease starts in the sacro-iliac joints and spreads to the spine in the majority. The exact etiology remains unknown. Individuals with the HLA-B27 antigen have 20 fold greater risk of developing spondyloarthritis. The axial skeletal manifestations of AS include sacro-iliitis, spondylitis, spondylodiscitis, and spondyloarthritis. Another major characteristic and pathognomonic sign of AS is new bone formation.

**MATERIAL AND METHOD:** This is a retrospective study from 26th Oct 2007 to 20th July 2008. MRI appearances are described in three cases of AS. All MRI examinations were performed using a 1.5T MR system (SIEMEN AVANTO). The sequences used were sagittal T1, T2, sagittal T2 fat-sat, Axial T2 and post contrast sagittal T1 and axial fat-sat. MRI is increasingly used to detect changes in the spine of patients with AS. Spinal changes associated with spondyloarthritis are florid anterior spondylitis (Romanus lesion), florid discitis (Andersson lesion), ankylosis, insufficiency fractures of the ankylosed spine, syndesmophytes, arthritis of the apophyseal and costovertebral joints and enthesitis of the interspinal ligaments.

**RESULT:** MRI shows different imaging features of AS depending upon the location and extent of disease process. In our cases Andersson lesion was seen in 1 patient, Romanus lesion was seen in 1 patient, squaring of vertebral bodies in 1 patient and thickening of anterior longitudinal ligament was seen in 2 patients.

**CONCLUSION:** MRI is very sensitive for early detection of spondyloarthropathy. It is useful in assessing early cartilage abnormalities and bone marrow edema before radiological manifestations become apparent.

**B: Musculoskeletal Imaging****(P)B-05****Osgood Schlatter Disease with Atrophy of Extensor Compartment of Leg and Foot Drop; A Rare Association**SIDRA HUMAYUN  
NAZIA KASHIF  
MUHAMMAD IDRIS  
FARHAN AHMAD*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: sidra.humayun@aku.edu*

The Osgood-Schlatter disease is a common disorder in young athletes and was first described in 1903 by two authors, Robert Bayley Osgood and Carl Schlatter, working independently. It is associated with pain, swelling, and tenderness in the proximal part of anterior tibia. This disorder has been established as the most common cause of knee morbidity in adolescence. The exact etiopathogenesis of this condition is not known but repetitive trauma, anatomic and mechanical

stresses may play a role. However it is generally accepted that OSD is caused by an avulsion of the secondary ossification center of the tibial tuberosity. This theory was proposed by Ogden in 1976. The associated condition with this disorders are elongated patella and formation of synovial osteochondromatosis but its association with common peroneal nerve injury and atrophy of anterior compartment of knee has not been reported in the literature. We report a case in which Osgood schlatter disease was associated with flattening of common peroneal nerve and atrophy of anterior compartment muscles of leg leading to foot drop.

**B: Musculoskeletal Imaging****(P)B-06****Contrast Vs. Non-Contrast Enhanced MR of Soft Tissue Masses**ANNUM DAWOOD  
NAJAM UDDIN  
ZIA FARUQUI  
KHURRAM AFTAB*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan  
E-mail: anum.dawood@gmail.com*

**PURPOSE:** Since the introduction of the first Gadolinium-based contrast agent in 1988, it has become clear that these agents significantly improve the diagnostic efficacy of MR imaging. Studies on single agents have shown that, in comparison to unenhanced sequences, all agents help to improve the detection and delineation of lesions which can alter diagnosis. The purpose of this study is to assess the efficacy of gadopentate dimeglumine (Gd-DTPA) enhanced magnetic resonance (MR) in the diagnosis and differentiation of soft-tissue, neoplastic and non-neoplastic lesions.

**MATERIAL AND METHODS:** Data from 1 March 2010 to 1 August 2010 was collected. Thirty patients with soft tissue masses (both neoplastic and non-neoplastic) were studied, using MR images with and without administration of Gd-DTPA. The characterisation of several entities, including differentiation of solid mass from proteinaceous cyst, demonstration of tumour nodules within haemorrhagic or necrotic masses, and delineation of tumour adjacent to oedema was easier using Gd-DTPA.

**RESULTS:** The use of Gd-DTPA may provide additional information for tissue specificity. However, in some complicated cases Gd-DTPA has been shown to provide essential information that cannot be obtained otherwise.

**CONCLUSION:** Conclusively, use of contrast enhanced MR as an adjunct to conventional MR imaging in the initial assessment of musculoskeletal soft tissue lesions provides potentially helpful information. However, T2-weighted images show better tissue contrast of the lesions, and are equal to contrast enhanced images in delineation of tumour margins. Non-contrast enhanced images are probably adequate for the delineation of lesions for surgical planning when a diagnosis has already been made.

**B: Musculoskeletal Imaging****(P)B-07****Pseudoaneurysm in A Recurrent Pelvic Aneurysmal Bone Cyst**

AZIEKAH IMDAD

ZISHAN HAIDER

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan.**E-mail: aziekah.imdad@aku.edu*

**INTRODUCTION:** 'Pseudoaneurysms' or 'false aneurysms' are focal enlargements of the vascular lumen due to partial or complete disruption of the arterial wall. Pseudoaneurysms in bony tumors are very rare and are reported to occur in osteochondromas. Only one case of pseudoaneurysm in an aneurysmal bone cyst has been reported to date. Aneurysmal bone cysts (ABC) are locally destructive lesions of the bone characterized by spongy or multiloculated tissue spaces filled with blood.

**CASE SUMMARY:** We report a rare case of pseudoaneurysm complicating a recurrent pelvic aneurysmal bone cyst in a 40 year old female, who presented with right hip pain and limb shortening. She had been previously treated by curettage, cementing and angioembolization. CT pelvis revealed a large expansile lytic lesion arising from the right pubis, ischium and iliac blade associated with significant protrusion of acetabulum in keeping with extensive aneurysmal bone cyst associated with pseudoaneurysm formation and arteriovenous shunting.

**C: Abdominal Imaging****(P)C-01****Congenital Anomalous Double Inferior Vena Cava**

ANEELA SHEEBA

RANI BENISH

KAUSAR SALDERA

GUL-E-KHANDA

SAIMA IMRAN

TARIQ MAHMOOD

*Department of Radiology, Jinnah Postgraduate Medical Centre, Karachi,**Pakistan**E-mail: aneelasheeba@yahoo.com*

**INTRODUCTION:** Double IVC is a rare congenital entity in which there is non-malignant variation in the basic venous plan of the IVC in abdomen and pelvis. In double IVC, the left IVC typically ends at the left renal vein, which crosses anterior to the aorta to join the right IVC.

**CASE SUMMARY:** We report a case of 20 years old female who presented with complaint of fever, weight loss, and anorexia for 4 months, diagnosed as tuberculous clinically. She got CT abdomen with I/V contrast which revealed incidental finding of congenital anomalous double inferior vena cava. Left IVC is receiving the left renal vein and is draining into the right sided IVC anterior to the descending aorta at the level of origin of superior mesenteric artery, the right IVC is normally entering the liver and draining into the right atrium.

**C: Abdominal Imaging****(P)C-02****Pancreatic Adenocarcinoma; Signs of Vascular Invasion Determined by MDCT**

SAMAN CHAUDHRY

AMAILA RAMZAN

MADIHA MAJEED

NAJAM UDDIN

ZIA S. FARUQUI

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan**E-mail: dr.smn@hotmail.com*

**PURPOSE:** To determine various signs of arterial and venous invasion in pancreatic carcinoma on staging MDCT.

**MATERIALS AND METHODS:** 35 patients with presumed pancreatic carcinoma underwent pancreas examinations by triphasic MDCT. CT signs of peripancreatic major vessels invasion (including coeliac artery (CA); common hepatic artery (CHA); superior mesenteric artery (SMA); portal vein (PV); superior mesenteric vein (SMV)) were determined pre-operatively at consensus reading of the axial and 3D images. These signs include; 1. Continuity of tumor with adjacent vessel graded as A-D, 2. Circumferential involvement, 3. Stenosis/occlusion, 4. Infiltration 5. Anatomical vascular deformity. Findings confirmed by per-operative findings in patients with resectable disease or by clinical follow up.

**RESULTS:** 43% of invaded veins were surrounded by less than 50% of the vessel circumference by tumour. 97% of invaded arteries were surrounded by more than 50% of the vessel circumference by tumour or were embedded in tumour. 69% of invaded veins presented stenosed or occluded. 41% of invaded arteries did not appear stenosed. 74% of invaded veins appeared infiltrated with an irregular wall. 45% of invaded arteries appeared infiltrated less often than invaded veins. 24% of invaded arteries appeared deformed and seemed to be stretched or stiffened in three-dimension reconstruction images

**CONCLUSION:** Invaded peripancreatic arterial and venous MDCT signs are different. It is important to pay attention to these differences in order to improve the accuracy of diagnosing vascular invasion and pancreatic resectability.

**C: Abdominal Imaging****(P)C-03****Determining Resectability of Pancreatic Carcinoma with 64-Slice MDCT**

USMAN BASHIR

M. U. MANZOOR

Z. S. FARUQUI

N UDDIN

K. A. MUFTI

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan**E-mail: drusmanbashir@gmail.com*

**PURPOSE:** A pictorial exhibit illustrating local staging of pancreatic cancer at 64-slice MDCT with emphasis on its role in surgical evaluation.

**MATERIALS & METHODS:** A retrospective search was performed of our hospital database for pancreatic cancer patients who underwent pre-surgery imaging evaluation. All patients had undergone dual-phase MDCT with arterial



and portal venous phase imaging. Disease features such as tumor size, proximity to mesenteric vessels, adjacent organs and locoregional lymphadenopathy were recorded as part of pre-operative assessment.

**CONCLUSION:** In this pictorial review, factors determining operability of pancreatic cancer will be illustrated. We, the authors have no objection to any form of publication of this pictorial essay.

### **C: Abdominal Imaging (P)C-04**

#### **Acute Abdomen – Ultrasonography Evaluation**

AMARA SAEED  
KAUSER SALDERA  
RUBINA ISHTIAQUE  
SAIMA IMRAN  
TARIQ MAHMOOD

*Department of Radiology, Jinnah Postgraduate Medical Centre, Karachi, Pakistan*

*E-mail: amaratarique@hotmail.com*

**INTRODUCTION:** Mostly the acute abdomen is an emergency condition and ultrasound findings are very helpful not only in the correlation of the cause of acute abdomen but also sometimes in the treatment to save the patient life. The advantages of ultrasound is not only time and cost effective in emergency conditions, above all it is free of ionizing radiation, which can be important in younger patients and pregnant women who presented with acute abdomen.

**DISCUSSION:** Acute Appendicitis is the most common cause of acute abdomen, using US it is possible to confirm appendicitis by visualizing the inflamed appendix. The typical appearance through ultrasound is that of a concentric layered, non-compressible sausage-like structure demonstrated in a fixed position at the site of maximum tenderness'. In young fertile women ectopic pregnancy is the most common gynaecological emergency because mostly patients presented with perforation. Using US it is possible to confirm ectopic pregnancy by visualizing through transvaginal ultrasound with high accuracy which shows pseudo gestational sac in uterus with heterogenous mass in adnexa.

In elderly middle age patients who presented with severe acute upper abdominal pain, is strongly suggestive for perforated peptic ulcer. In peptic ulcer US visualizes asymmetrical thickening of the duodenal wall and perforation is confirmed by free air under the diaphragm.

Acute cholecystitis present with acute abdomen, ultrasound findings in acute cholecystitis are gall bladder wall thickening with peri-cholecystic fluid and presence of calculi either at CBD or at neck cause severe acute pain with gallbladder distension.

Renal colic present with acute pain per abdominally and US findings shows hyperechoic calculi even in distal ureter by filling the bladder either with or without hydronephrosis .

Mesenteric lymphadenitis is a typical disease of childhood. The US findings are solely enlarged, hyper-vascular mesenteric lymph nodes.

### **C: Abdominal Imaging (P)C-05**

#### **Percutaneous Cholecystostomy - An Immediate Alternative to Surgery in a High-risk Patient**

RAZA SAYANI  
ZAHID ANWAR  
TANVEER UL HAQ  
AMIN RAJANI  
NAZIA SHAHID

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: raza.sayani@aku.edu*

**INTRODUCTION:** The prevalence of cholelithiasis is rising in the elderly, which currently accounts for approximately 25% of all cholecystectomies performed for acute cholecystitis. The morbidity and mortality associated with emergency cholecystectomy in critically ill patients is considerably higher because of serious underlying co morbid conditions, such as coronary artery disease, lung disease, angina, renal failure and others. Several researchers have suggested that percutaneous transhepatic cholecystostomy may be effective for the decompression of the inflamed gallbladder.

**OBJECTIVE:** To evaluate the efficacy and safety of percutaneous cholecystostomy (PC) in the immediate treatment of acute cholecystitis in high risk patients.

**MATERIALS AND METHODS:** Percutaneous transhepatic cholecystostomy were performed in 64 patients (33 males and 31 females, age range 36-88 years) who were referred to Aga Khan University Hospital's Radiology department from Jan 2008 to May 2010. Pre procedure antibiotic was administered and under ultrasound guidance the gall bladder was punctured followed by placement of wire. Serial dilatation of tract was performed and placement of 8 Fr pigtail catheters. Samples were sent for culture with initial puncture.

**RESULTS:** The data was retrospectively evaluated from medical records and various factors were evaluated. These included presence of clinical and sonographic signs of acute cholecystitis, presence of gall stones, pericholecystic collection, raise in white blood cell count, bile culture and co morbid diseases. Success rate, clinical outcome and complications of the procedure were analyzed.

Ultrasound revealed gallbladder stones in 55 patients and acalculous cholecystitis in nine patients. Cholecystectomy or removal of cholecystostomy was followed.

**CONCLUSION:** Percutaneous cholecystostomy is a rapid, safe and relatively easy to perform procedure and serves as an alternative treatment method in patients with acute cholecystitis who are at high risk during surgery due to age and comorbid diseases.

### **C: Abdominal Imaging (P)C-06**

#### **Portal Vein Aneurysm with GI Bleeding: An Unusual Presentation**

RUBY KUMARI  
M. AYUB MANSOOR

*Department of Radiology, Liaquat National Hospital, Karachi, Pakistan  
E-mail: subhashaku2005@yahoo.com*

**INTRODUCTION:** Portal vein aneurysms are localized dilatation of portal venous system. It is a rare vascular abnormality representing less than 3 % of all venous aneurysms, many of which are incidentally discovered on routine imaging study. The prevalence is 0.6 to 4.3/1000 persons. The most common sites are main portal vein, confluence of superior mesenteric vein and splenic

vein or at bifurcation of right and left branches of portal vein. Two etiologies congenital and acquired have been proposed as cause of portal vein aneurysm. Liver cirrhosis and portal hypertension have been thought to be the main causes of portal vein aneurysm. A maximum portal vein diameter of 20 mm is diagnostic standard for extra hepatic portal vein aneurysm and 9 mm is diagnostic standard for intra hepatic ones.

**CASE HISTORY:** A 62 years old woman presented with generalized body weakness. Physical examination was unremarkable. Laboratory analysis reveals decreased hemoglobin (8 gm/dl), occult blood was positive in stool D/R. liver function parameters were normal. CT scan abdomen was done for the work up of anemia. CT scan revealed portal vein aneurysm at bifurcation of right and left branches of portal vein. Diameter of aneurysm was 30 x 25 mm. A base line ultrasound was performed to better delineate the aneurysm and showed no evidence of hepatic cirrhosis, intrinsic liver disease, and portal hypertension or portal vein thrombosis.

### C: Abdominal Imaging (P)C-07

#### Rare Radiological Presentation of Gossipibioma

AAISHA IRFAN  
SALEHA SHAHZAD  
SYED MEHMOOD

*Karachi X-Ray & CT Scan/ Ultrasound Centre, Karachi, Pakistan*  
E-mail: salehaanwar@hotmail.com

**INTRODUCTION:** Gossipibioma, also known as textiloma is most commonly a retained surgical sponge but can be from a variety of operative substances. When it is due to an abdominal surgical procedure, it usually presents with symptoms of vague abdominal pain, fever, anorexia, weight loss, abdominal distention, constipation or diarrhoea. Examination is mostly unremarkable.

**CASE SUMMARY:** A 45 year old female was referred to us for a workup of lower abdominal pain. Her abdominal ultrasound revealed cystic masses with internal membranes and for further evaluation; a CT scan was performed on a 16 slicer MDCT scanner. Coronal and saggittal images were reformatted which showed two large well defined cystic lesions in both flanks, containing patchy areas of high density and multiple tubular calcified structure within it. These masses were displacing the adjacent small bowel loops. No peritoneal fat stranding or peritoneal lymph nodes were identified. No ascites was seen. She was diagnosed with mesenteric hydatid cyst on the basis of above CT findings. However laparotomy was done and the mass turned out to be two gossipibomas.

Gossipibioma is a rare occurrence and gives very inconsistent radiological appearance which sometimes makes it difficult to diagnose accurately. Radiological characteristics of gossipibioma are that of a soft tissue mass with characteristic air bubbles within it. It may give rise to fistulous communications with adjacent structures. Ring enhancement on CT is also frequently seen which is indistinguishable from abscess or tumor.

Our case is different from often reported cases as there were two surgical sponges in opposite flanks, giving anatomically symmetrical and radiologically discrete signals. Also, there was no evidence of specks of air, the usual hallmark of such masses. The well defined cystic lesions with linear tubular calcified densities were more in keeping with mesenteric hydatid cysts.

### C: Abdominal Imaging (P)C-08

#### Gastric Duplication Cyst - A Rare Cause of Gastric Outlet Obstruction

AMEET JESRANI  
AMJAD SATTAR  
SHABBIR NAEEM  
S. A. ALI ANWAR NAQVI  
S. ADIBUL HASAN RIZVI

*Department of Radiology, Sindh Institute of Urology and Transplantation, SIUT, Karachi, Pakistan*  
E-mail: ameeet.jesrani@yahoo.com

**OBJECTIVE:** Gastric duplication (GD) is an uncommon malformation of gastrointestinal tract, usually presenting as gastric outlet obstruction. Its incidence is 7% of all alimentary tract duplications. It is usually cystic, attached to the greater curvature of the stomach and has no communication with the stomach. GD usually presents with an upper abdominal mass and vomiting. It can also present with haematemesis and melena. Older patients may present with pain in abdomen, nausea, vomiting and weight loss. GD is commonly seen in females. The diagnosis should be suspected when an infant usually a female comes with features of gastric outlet obstruction. USG and CT scan of abdomen are highly contributive in the diagnosis of GD cyst. GD is managed surgically by simple excision, by dissecting the common wall between the stomach and the duplication cyst, and usually it can be done easily without entering the stomach.

**CONCLUSION:** We report a case of 27 year old female who presented with complain of epigastric pain, nausea and vomiting. Her CT scan showed a hypodense cystic lesion involving the greater curvature of stomach, with loss of intervening fat planes between the lesion and gastric wall with another small exophytic intramural hypodense lesion arising from fundus of stomach. These two intramural cystic appearing lesions represent duplication cysts.

### C: Abdominal Imaging (P)C-09

#### Wandering Spleen With Torsion of Vascular Pedicle: Imaging Findings

YASIR JAMIL KHATTAK  
WASIM AHMED MEMON  
MUHAMMAD ZEESHAN  
TARIQ ALAM KHAN  
JUNAID JAMIL  
MUHAMMAD IDRIS

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan*  
E-mail: yasir.jamil@aku.edu

**INTRODUCTION:** Wandering spleen is a rare clinical entity characterized by hypermobility of spleen due to laxity or abnormal development of its supporting ligaments. The cause of its abnormal mobility can be attributed to hormonal changes during pregnancy or failure of fusion of the dorsal peritoneum. It is defined as a spleen without peritoneal attachments. In cases with delayed clinical or radiological diagnosis complications like splenic torsion, infarction, and necrosis may result.

Patients can be asymptomatic or present with a mobile abdominal lump. The symptoms can be acute, chronic, or intermittent. Early clinical diagnosis is difficult, so imaging modalities play an important role. Wandering spleen is a rare cause of abdominal pain, and an accurate diagnosis is seldom made preoperatively. Splenectomy is the treatment of choice in cases of

splenic torsion and infarction, while in patients with chronic symptoms splenectomy may also be attempted.

**CASE SUMMARY:** We herein report a patient with wandering spleen, who presented with asymptomatic mobile abdominal mass later proved to have acute torsion of splenic pedicle. The spleen was also found to have undergone atrophy. The presentation, diagnostic procedures, and treatment modalities are reviewed.

### **C: Abdominal Imaging (P)C-10**

#### **Extrahepatic Portal Vein Obstruction in a Young Female: Portal Biliopathy, A Rare Presentation: A Case Report**

SHAHBAZ ALAM  
QAZI SAAD BIN KHALID  
MUHAMMAD ZEESHAN  
DARAKHSHAN KANWAL  
WASIM AHMED MEMON

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: shahbaz.alam@aku.edu*

**INTRODUCTION:** Among different causes of portal hypertension, the extrahepatic portal venous obstruction (EHPVO) is a common cause, especially in the developing countries. It constitutes approximately 40% of all patients with portal hypertension. In EHPVO, the portal vein is transformed into a cavernoma, which is a bunch of multiple collateral veins around the obstructed portion of portal vein. The term "portal hypertensive biliopathy" (PHB) implies to biliary tract obstruction because of dilated portal venous channels in patients with portal hypertension. It is important to differentiate this condition from cholangiocarcinoma as the appearances mimic, with the cavernoma appearing as a solid tumour.

**CASE SUMMARY:** We report a case of 19-year-old female, known case of hepatitis C, Protein C and S deficiency, presented with bloody vomiting and black color stools for 1 day in Emergency Department of Aga Khan University Hospital. After management, endoscopy was done and band ligation was performed. Her liver function test was performed which came out to be within normal limits. Subsequently, an ultrasound and CT abdomen was advised which showed moderate intrahepatic biliary dilatation, gallstones, thrombosed portal and superior mesenteric veins, aneurysmal dilatation of the portal vein along with multiple dilated collateral seen at the porta hepatis, which were compressing the CBD at its mid level. Distal CBD at the head of the pancreas showed normal caliber, thus the diagnosis of Portal Biliopathy was made. Furthermore, patient was followed as an outpatient in clinics. Multiple admissions were made because of recurrent cholangitic episodes. A biliary stent was placed via ERCP and patient showed improvement.

### **C: Abdominal Imaging (P)C-11**

#### **Balloon Angioplasty of Budd Chiari Webs Using Diverse Approaches: Case Reports**

RAZA SAYANI  
TANVEER UL HAQ  
MUHAMMED AZEEMUDDIN

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: raza.sayani@aku.edu*

**INTRODUCTION:** Budd-Chiari syndrome (BCS) is an infrequent, usually

life-threatening disorder. It is divided into different types according to location and form of obstruction. Membranous obstruction of the inferior vena cava is a rare congenital anomaly that results in the primary type of Budd-Chiari Syndrome. The primary therapeutic approach includes medical management and relief of hepatic venous outflow obstruction. Until recently, surgical resection of web was the only available option. Percutaneous balloon dilation of the inferior vena cava membrane is now a viable alternative in some patients. We report 2 patients with BCS who had membranous obstruction at the level of the inferior vena cava and hepatic veins. The webs were successfully dilated by balloon catheters using transjugular approach in one and direct percutaneous hepatic vein puncture in other.

**CASE SUMMARY:** 33 years old male patient presented with chief complaint of abdominal distention. Ultrasound examination and CT scan showed gross ascites along with bilateral pleural effusion. Liver showed normal size with homogeneity however on Doppler scan there was no flow in the hepatic veins. Venogram was performed through transjugular approach which revealed thrombosis of right hepatic vein. The middle hepatic vein was patent, however, a web was identified at the junction of common hepatic vein with IVC so balloon angioplasty of this web was carried out.

In other patient, a 30 years old female with gross effusion and ascites with suspected Budd Chiari syndrome, transjugular approach to cannulate the hepatic veins failed. Concomitant ultrasound Doppler scan showed very dilated hepatic veins with multiple collaterals and very sluggish flow. Direct percutaneous hepatic venous puncture was made and occlusion was crossed with extreme difficulty by micro-wire. Balloon angioplasty was then carried out in the occluded segment of the left hepatic vein. The final venographic run showed good patency of the occluded segment and rapid flow from the left hepatic vein. No residual collateral channels were found.

### **C: Abdominal Imaging (P)C-12**

#### **Patient with Acute Appendicitis Incidentally Found to Have Polysplenia Syndrome: A Case Report**

MUHAMMAD ZEESHAN  
FARHAN AHMAD  
QAZI SAAD BIN KHALID  
DARAKHSHAN KANWAL

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: muhammad.zeeshan@aku.edu*

**INTRODUCTION:** The POLYSPLENIA SYNDROME, also known as left isomerism or left-sidedness is a spectrum containing multiple congenital abnormalities. The findings include bilateral bilobed lungs with bilateral pulmonary atria, midline liver, stomach in non specific position, multiple spleens, short pancreas and double infrarenal IVC with proximal interruption and continuation of azygous or hemiazygous veins. Although this syndrome has been reported in several Radiology journals in the past, however, the whole spectrum of disease was yet not seen in a single patient yet. We report a case with polysplenia syndrome that presented with appendicitis and incidentally found to have most of the characteristics of this syndrome.

**CASE SUMMARY:** A 27-year-old male came to Emergency Department of Aga Khan University Hospital, Karachi with complaints of right iliac fossa pain of acute onset. A clinical diagnosis of acute appendicitis was made. His laboratory investigations and CT FACT was advised. Initial labs revealed leukocyte count to be slightly elevated at 12.3 with 65% of neutrophils. His urine DR was unremarkable. On CT FACT, there was distended fluid filled appendix measuring 9 mm without any significant periappendiceal inflammatory changes, so a tentative diagnosis of acute appendicitis was made. However, on further interpretation of unenhanced CT examination incidental findings of

multiple spleen, truncated pancreas, non rotation of gut, double infrarenal IVC with proximal interruption and azygous continuation, preduodenal portal vein and retroaortic left renal vein were revealed. Subsequently, patient underwent appendicectomy and confirmed to have acute appendicitis perioperatively. Histopathology revealed inflammatory changes within appendix consistent with acute suppurative appendicitis. The postoperative course was uneventful and patient was discharged and later had followed up as an outpatient.

### **C: Abdominal Imaging (P)C-13**

#### **Portal Venous Gas Secondary to Gangrenous Gall Bladder And Mirizzi Syndrome Diagnosed by Gray Scale Ultrasound but not on 64-Slice MDCT**

MUHAMMAD IDRIS  
NADIR KHAN  
SIDRA HUMAYUN  
NAZIA KASHIF  
WASIM MEMON

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: muhammad.idris@aku.edu*

Portal venous gas is a rare entity which is associated with many fatal and non fatal conditions. Its exact etiology remains unclear. Computed tomography (CT) has been described as sensitive and primary imaging tool for the detection of this condition but there are only a few case reports in the literature where portal venous gas was not detected on CT scan but was found on ultrasonography. We report a similar case in which portal venous gas developed secondary to gangrenous gall bladder and Mirizzi syndrome was found on ultrasound but went undetected on 64-slice MDCT. To the best of our knowledge this association has not been reported in the medical literature previously.

### **C: Abdominal Imaging (P)C-14**

#### **Jejeno-Duodeno-Gastric Intussusception Secondary to Percutaneous Gastrostomy Tube in an Adult Patient. A Case Report and Review of Literature**

MUHAMMAD IDRIS  
YASIR JAMIL KHTAK  
TARIQ ALAM  
SIDRA HUMAYUN  
WASIM MEMON

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: muhammad.idris@aku.edu*

Intussusception refers to the invagination of a part of the intestine into itself. It is the most common abdominal emergency in early childhood but in adults it is unusual and the diagnosis is commonly overlooked. In majority of cases of adults, a pathologic cause is identified. In contrast, the majority of cases in children are idiopathic. Amongst the retrograde small bowel intussusceptions, duodenogastric intussusception is exceedingly rare. It has been reported as a cause of gastric outlet obstruction after gastrostomy tube (GT) placement in two children previously. It rarely can occur as one of the complications of percutaneous endoscopic gastrostomy (PEG) tubes.

Since its first introduction by Gauderer in 1980, percutaneous endoscopic gastrostomy (PEG) has become the preferred procedure for establishing enteral feeding in most clinical situations. Despite the overall safety, a number of

complications can occur following PEG placement and Jejeno-duodeno-gastric intussusception is one of them which is a very rare entity.

We report here a case of Jejeno-duodeno-gastric intussusception secondary to placement of PEG tube. To our knowledge this is the third case of isolated duodenogastric intussusception being reported.

### **C: Abdominal Imaging (P)C-15**

#### **Complicated Liver Abscess Resulting in IVC and Right Atrial Thrombosis, A Rare Presentation: A Case Report**

KIRAN HILAL  
MUHAMMAD ZEESHAN  
TALHA AHSAN ZUBAIRI  
ZAFAR SAJJAD

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: kiran.hilal@aku.edu*

**INTRODUCTION:** The liver abscess is a common entity in Asia, however, it rarely results in thrombosis of IVC and right atrium which can be devastating and may endanger patient's life.

Abscesses are classified according to the etiology, as pyogenic, amebic, or fungal. The pyogenic abscesses are most commonly caused by Clostridium species and gram-negative bacteria, such as Escheria coli and bacteroides species, which enter the liver via the portal venous system or biliary tree. The Amebiasis occurs in 10% of the world's population and is most common in tropical and subtropical regions. Humans are the principal hosts and reservoir and become infected by ingestion.

**CASE SUMMARY:** We are reporting a case of 43-year-old male who presented with complaints of right hypochondriac pain and high grade fever for 12 days. On examination he was very ill, dyspnoic, pale, and had oedema of the ankles and sacrum. The jugular venous pressure was raised. He was tachycardiac with blood pressure of 130/90 mm of Hg. The abdomen was slightly distended.

Subsequently, he was diagnosed as having liver abscess with thrombus extending into right hepatic vein into the IVC and right atrium on ultrasound examination. The contrast enhanced CT examination showed similar findings with extension into the right atrium.

### **C: Abdominal Imaging (P)C-16**

#### **Imaging Study Ultrasound Showing Fatty Liver**

MUMTAZ MALIK,  
ROZINA ASLAM  
NAUREEN HADI  
TASIR AHMED  
SALMA SOHAIL  
SAMINA KHALID  
SHEELA  
LUBNA ANJUM  
NAZIA

*Aga Khan Hospital for Women & Diagnostic Centre, Kharadar, Affiliated with AKUH, Karachi, Pakistan  
E-mail: mumtaaz.malik@aku.edu*

**INTRODUCTION:** Fatty liver (also known as steatorrheic hepatitis or steatosis hepatitis) is a reversible condition where large vacuoles of triglyceride fat accumulate in liver cells via the process of steatosis. The prevalence of FLD

in the general population ranges from 10% to 24% in various countries. FLD is diagnosed by Elevated liver enzyme; Serology to exclude viral hepatitis, imaging study (Ultrasound) showing fatty infiltrate The Liver is the largest organ in the body and is quite accessible to sonographic evaluation.

**OBJECTIVE:** The primary objectives of the study was to calculate accuracy of ultrasound for Fatty Liver (includes Hepatomegaly (size of liver), alteration of echogenicity of parenchymal tissue, changes in lateral marginal angle of the left lobe & capsule integrity detection in Kharadar –Karachi).

**METHODOLOGY:** It is a retrospective analytic study was conducted at Aga Khan Hospital for Women & Diagnostic Centre, Kharadar, and affiliated with AKUH from 1st January to 31st December, 2009. All the data about fatty liver sonography was collected from ultrasound computerized reporting system, medical record files. Actual variable includes Patient preparation, Sonographic Technique & Sonographic Criteria. In our department, we have used sonographic criteria to diagnose the fatty liver, includes the following points: Size of liver, Echogenicity of liver parenchymal tissue & Hepatic Capsule or margin and lateral marginal angle of the left lobe etc.

**RESULTS:** A total of 3041 (100%) cases of patients underwent liver sonography. 2352 (2352/3041x100=77.34%) patients were diagnosed normal size & normal texture of liver, while 689 (689/3041x100=22.66%) patients were diagnosed as Hepatomegaly. 331 (331/689x100=48.04%) patients were excluded as diagnosed Inflammation, jaundice, cirrhotic liver, hepatoma, focal mass in liver, liver abscess, hydatid cysts, hemangioma & Heelp syndrome associated with pregnancy. 358 (358/689x100= 51%) patients were diagnosed as a "Fatty Liver" with the help of "Ultrasound". The causes of fatty liver were includes as 173 (173/358=48.32%) patients were diagnosed Diabetes Mellitus (Positive blood sugar & urine sugars), 57 (57/358x100=15.92%) patients with positive reports of alteration in lipid profile & under treatment of physicians, 30 (30/358x100=8.3%) patients with history of alcohol, while 98 (98/358x100=27%) patients were not returned for follow up. There were 119 (119/358=33.24%) male & 239 (239/358x100=66.75%) female patients. Our community of study were Memon, Balochi, Punjabi, Iranian, Pathan, Khatri, Katchi, Ismaili, Bangoli, Afghani & Sindhi.

**CONCLUSION:** We have sufficient evidence to conclude that our sonographic practices diagnosing "FATTY LIVER" and other liver diseases.

### C: Abdominal Imaging

#### (P)C-17

#### Comparison of Sensitivity of Doppler Ultrasound with Computed Tomography in Early Detection of Mesenteric Vein Thrombosis with and Without Bowel Ischemia

AJAY KUMAR  
MUHAMMAD AQEEL BABRI  
SHAHPER AQEEL

*Department of Radiology, Ittefaq Hospital (Trust), Lahore, Pakistan*  
E-mail: drshahper@yahoo.com

**PURPOSE:** Mesenteric vein thrombosis, an uncommon but important clinical entity, can cause ischemia or infarction of the small intestine. Patients usually present with vague non-specific symptoms that lead to delay in diagnosis and initiation of treatment. Ultrasonography is initial imaging usually performed for abdominal symptoms. Our study compares the sensitivity of ultrasound with computed tomography in early recognition of this disease including its complications like bowel ischemia. We give case series of 4 patients having small intestinal ischemia secondary to superior mesenteric vein thrombosis.

**MATERIALS AND METHODS:** This is a retrospective study including 4 patients (2 women and 2 men) aged from 25 and 65 years presented with abdominal pain, distention, vomiting. One of our female patients also had

history of C- section 1 month back. All patients subjected to ultrasound underwent contrast computed tomography (CT) scan of abdomen in portal venous phase

**RESULTS:** On Color Doppler ultrasound only 2 of 4 patients were diagnosed (sensitivity 50%) but contrast enhanced computed tomography (CT) scan of abdomen in portal venous phase confirmed the diagnosis of MVT in all 4 patients (100% sensitivity). Our first patient who was detected early by ultrasound and later confirmed on CT had no complication and was treated medically with anticoagulants showed good recovery of symptoms. Rest of the three patient (75%) had complication such as bowel loops ischemia & ascities but none has perforation of bowel. Ultrasound helped in detection of these complications in only one patient however contrast enhanced computed tomography (CT) scan of abdomen confirmed diagnosis of mesenteric vein thrombosis and its complications in all these 3 patients who were later treated surgically. Out of these 3, one patient expired.

**CONCLUSION:** Imaging plays important role in diagnosis of SMV/ PV thrombosis. High degree of clinical suspicion is required for diagnosis on ultrasound as it carries much less sensitivity and specificity. Though our sample size was small but it still signifies the supremacy of Contrast enhanced CT in portal venous phase which is 100% sensitive in early diagnosis of mesenteric vein thrombosis and its complications.

### C: Abdominal Imaging

#### (P)C-18

#### Treatment Efficacy of CT Guided Radiofrequency Ablation of Hepatocellular Carcinoma: Initial Experience at Sindh Institute of Urology and Transplantation

MAHIRA YUNUS

*Department of Radiology, Sindh Institute of Urology and Transplantation, SIUT, Karachi, Pakistan*

E-mail: mahiraabubakar@gmail.com

**INTRODUCTION:** Surgery is the primary curative treatment for focal malignant hepatic tumors, but it needs major hepatic resection, which carries risk of significant morbidity and mortality. Image guided radiofrequency (RF) ablation has been used increasingly during the past decade to treat hepatic tumors. Follow-up imaging studies are needed to evaluate the results of RF ablation and to identify any complications. Various imaging modalities may be used for this purpose including ultrasound, CT scan, MRI and if required PET-CT. In most institutions contrast enhanced triphasic CT scan is used immediately after, one month after and at three months intervals after RF ablation.

**OBJECTIVE:** To investigate the treatment efficacy of CT guided radiofrequency (RF) ablation of hepatocellular carcinoma.

**MATERIALS AND METHODS:** This study is carried out at SIUT from April 2010 to August 2010. Study design is case series. Three patients are included in this study who are diagnosed to have hepatic malignant tumors, in these patients hepatomas, then CT-guided Radiofrequency Ablation of these tumors was carried out under general anesthesia (GA) using RITA RF Generator 1500 X and single inserting straight trocar needle with side deploying arrays along with needle tract ablation facility. The CT scanner used for this procedure was 64-slice multidetector. Light Speed VCT GE Medical System model number 5124069-5. Inclusion criteria: Single lesion of size less than or equal to 5.00 cm.

Exclusion Criteria: Multiple lesions, lesion size more than 5.00 cm or cirrhosis of child pugh C are excluded from the study.

**RESULTS:** Complete ablation of all three tumors was carried out with no evidence of residual or recurrent tumor.

**CONCLUSION:** CT guided RFA is minimally invasive therapeutic procedure and has become effective and safe for local treatment of malignant hepatic tumors.

## **D: Neuro, Head & Neck Imaging**

### **(P)D-01**

#### **Bilateral Subcortical and Basal Ganglia Calcifications in a Patient with Dural Arteriovenous Fistula and Arteriovenous Malformation**

RAZA SAYANI  
ZAHID ANWAR KHAN  
TANVEER UL HAQ  
RANA SHOAIB HAMID  
MUHAMMED AZEEMUDDIN

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan*  
*E-mail: raza.sayani@aku.edu*

**INTRODUCTION:** Calcification of intracranial arteriovenous malformations (AVMs) are not uncommon, however these are usually limited to the vessel wall of AVM and occasionally to the surrounding gliotic parenchyma. Calcification at distant site from the AVM which is extensive, bilateral and diffuse has been less often seen.

Bilateral subcortical and basal ganglia calcification has been rarely reported in literature to be associated with dural arteriovenous fistula (AVF). The dural AVF have been found to be associated with chronic venous reflux which has been postulated to result in subcortical calcifications. We report a case of characteristic calcification in the cortico-medullary junction at the bottom of cerebral sulci and basal ganglia in a patient with both AVM and dural AVF.

**CASE SUMMARY:** A 29 year old male patient presented with chief complaint of recent onset generalized tonic clonic seizures and disorientation. The imaging studies demonstrated diffuse, symmetric calcification in the bilateral basal ganglia and subcortical white matter. Angiography revealed AVM in parieto-occipital region with supply predominantly from left posterior cerebral and middle cerebral arteries. Multiple dural feeders from meningeal branches of occipital and superficial temporal branches of bilateral external carotid and right internal carotid arteries. Calcification is proposed to be due to chronic reflux into the parenchymal veins or vascular steal phenomenon. We report this rare co-occurrence of subcortical calcification in a patient with a dural AVF and AVM to demonstrate this finding and review the relevant literature.

## **D: Neuro, Head & Neck Imaging**

### **(P)D-02**

#### **Case Series: The Varied Clinical Spectrum of NF II; How Does Imaging Helps**

MAHREEN RASOOL  
MUHAMMAD SALMAN  
NADIRA ABID  
SAIMA IMRAN  
TARIQ MAHMOOD

*Department of Radiology, Jinnah Postgraduate Medical Centre, Karachi, Pakistan*  
*E-mail: mahkd@hotmail.com*

**INTRODUCTION:** Neurofibromatosis II is an inherited autosomal dominant syndrome also known as MISME Syndrome "characterized by multiple Inherited schwannomas, meningiomas and ependymomas . One half of the cases are inherited and one half are the result of mutations. The most common tumor associated with this syndrome is the vestibulocochlear (cranial nerve VIII) schwannoma. Incidence of the disease is about 1 per 30,000-40,000 persons.

**CASE SUMMARY:** We presented a case series of 10 patients with an age range of 15-35 years who presented with unusual clinical and radiological manifestations of NFII in the department of Radiology JPMC Karachi in a

period of 9 months i.e from April 09- Dec 09. All the patients went through MRI examination of either the brain or Spinal cord and were incidentally found to have Neurofibromatosis II on further imaging and clinical work up. 6 of these patients presented with symptoms related to spinal cord, one patient having ependymoma along with peripheral nerve roots schwannomas , two with clinical suspicion of Potts disease and found to have intraspinal Meningiomas, 4 of them presenting with dumb bell tumors 2 of these with malignant transformation and 4 with intracranial manifestations and found to have schwannoma along with demyelinating lesion , or Meningiomas and 2 of them presented with associated vasculitis.

**CONCLUSION:** Contrast enhanced MRI examination is the preferred modality of choice for the screening as well as for the diagnosis and follow up of the patients with Neurofibromatosis II. It can detect the number, size, location and extent of CNS neoplasm's as well as serial imaging can detect their progression and allows better planning for treatment

## **D: Neuro, Head & Neck Imaging**

### **(P)D-03**

#### **Skull Radiography: Does the Current Practice Conform to the Established Standards and Guidelines?**

WAJIHA BANO  
USMAN MANZOOR  
NAJAMUDDIN

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan*  
*E-mail: gia.bano@gmail.com*

**OBJECTIVE:** Skull x-ray (SXR) is a common imaging investigation that is requested for the assessment of head injury. However, SXR cannot exclude any serious brain injury and guidelines suggest that skull X-rays should be performed when certain criteria is fulfilled. In UK, the numbers of SXR carried out were reduced to one third by adhering to established guidelines. The purpose of this audit is to assess whether skull x-rays carried out in our department are justified and does our clinical practice conform to the established guidelines.

**MATERIAL AND METHODS:** Radiology reports of patients who underwent skull x-ray during the period of one year were reviewed retrospectively. Using Royal College of Radiology (RCR) guidelines, Patient's notes were evaluated for the signs and symptoms of the patient and justification of skull x-ray. Findings of the skull x-ray and their effect on the management was also studied.

**RESULTS:** Using RCR guidelines as reference standard, 22 out of 30(73.3%) referrals for SXR were not justified. 21 out of 30(70%) x-rays were normal and 9 were abnormal (30%). Management of 13 (43.3%) was changed following the SXR and management of 15 (33%) was unchanged.

**CONCLUSION:** The current practice to request SXR does not conform to the current standards and most of the referrals for skull radiography are not justified. Guidelines should be adhered while referring SXR so as to reduce the patient's radiation dose and workload on radiology department.

**D: Neuro, Head & Neck Imaging****(P)D-04****How can the Radiation be Reduced to the Lens of the Eye in Patients Undergoing Computed Tomography (CT) of the Sinuses with out Compromising the Image Quality?**RAZA USMAN  
NAJAMUDDIN*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan  
E-mail: raja\_usmanraza@yahoo.com*

**PURPOSE:** To search, collect and collate the studies containing data regarding the different methods of reducing the radiation dose to the lens of the eye in patients undergoing CT of the sinuses without compromising image quality. Also, with the aim to determine their effectiveness in reducing radiation dose and any lapses in findings which highlight the need of research in this field.

**MATERIALS & METHODS:** The healthcare, medical and scientific databases searched for related studies were Medline, PUBMED, EMBASE, The Cochrane Library and Science Direct. The search terms used were CT sinus, sinusitis, bony abnormality, sinuses, eye lens, CT sinus strategies, low dose, optimisation, dose parameters, reduction, radiation dose, dose lens, protection lens, lowest achievable, effect decreasing mAs, shielding, radiation protection, standard CT sinus, protocol, radiation dose, eye dose lens, cataract, recommended dose and image quality. Inclusion and exclusion criteria filter was applied to the search results to remove irrelevant studies. All relevant studies were evaluated and critically appraised utilising the Critical Appraisal Skills Programme (CASP) appraisal tool.

**RESULTS:** Three methods were identified for reducing the radiation dose to the lens of the eye during CT of the sinuses without affecting image quality. These were of using low mAs (milliamperes), use of an eye lens protection (bismuth-containing latex shield) and an increased interslice gap.

**CONCLUSION:** The literature's finding states the three methods for reducing the radiation dose to the lens of the eye during CT of the sinuses. However, no study found discussing the other parameters like tube voltage, section thickness, pitch and gantry cycle time which can also influence the radiation dose to lens providing appropriate image quality. Therefore, a research should be made to achieve the optimum quality of CT sinus images at minimum radiation dose to the lens.

**D: Neuro, Head & Neck Imaging****(P)D-05****Imaging of Paranasal Sinuses. What do Surgeons Need to Know**AHMED BILAL  
QAZI AHSAN AZEEM\*  
ZIA.S.FARUQUI  
ISRAR AHMED*Department of Radiology Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan**\*Department of Otolaryngology, Ittefaq Hospital (Trust), Lahore, Pakistan  
E-mail: ahmedbilal3@hotmail.com*

**INTRODUCTION:** Recent advancements in imaging techniques have revolutionized the imaging of paranasal sinuses. With the advent of multidetector 64 computerized tomography and magnetic resonance imaging with increasing magnetic strength, the classical domain of detailed regional and functional anatomy have been discussed, however the surgical aspects of paranasal sinus

imaging have still not been considered in literature.

**PURPOSE :** Purpose of this poster was to highlight various surgical pathologies of paranasal sinuses in the light of radiological imaging.

**MATERIAL AND METHODS:** More than 50 patients presenting with various paranasal sinus pathologies were selected.

They all underwent thin slice CT on paranasal sinus protocol. MRI was reserved for the patient with malignant neoplasm of paranasal sinuses. Scans were discussed with ENT surgeon according to the surgical steps.

**DATA ANALYSIS AND RESULTS:** Cases included those of turbinectomy, antrochoanal polyps, mucocoeles, fungal sinusitis, choloroma, cleft palate, invasive malignant neoplasms.

**CONCLUSION:** The imaging of paranasal sinuses serves as a good surgical assistant. Radiologists should be aware of the various aspects required by the surgeons during the surgery of paranasal sinuses so that effective reporting technique can be achieved.

**D: Neuro, Head & Neck Imaging****(P)D-06****Blue Rubber Bleb Nevus Syndrome: Case Report**AMAILA RAMZAN  
SAMAN CHAUDHRY  
NAJAMUDDIN  
ZIA FARUQUI  
KHURRAM AFTAB*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan  
E-mail: amyla-r@hotmail.com*

**INTRODUCTION:** Blue Rubber Bleb Nevus Syndrome is a phakomatosis, characterized by multiple cutaneous venous malformations in association with internal venous malformations (most commonly affecting the bowel). Overall, this is a rare condition and involvement of brain is even rare. 200 cases have been reported in literature. The lesions are usually present at birth or appear in early childhood, and they tend to increase in size and frequency with age. Vascular malformations may be present in other locations, and a few reports describe associated involvement of the central nervous system. Most cases are sporadic, but dominant autosomal or sex-linked transmission has been reported in some families.

**CASE SUMMARY:** A case report of a 28 year old female, who presented with focal seizures, headache, multiple TIAs associated with hemetemesis and anemia. On physical examination, she looked pale with few bluish nodules on skin and mouth.

MRI of the head was performed with and without contrast which confirmed the presence of multiple cavernomas in the primitive brain territory. These were spread out in the thalamoganglionic territory besides the mid brain and brainstem. Few of them were present in the vermis as well. The cavernoma in right subthalamic area appeared to have faintly hemorrhaged recently. In addition, there were multiple venous angiomas in and along these cavernomas which made this a classical blue rubber bleb nevus syndrome. There was no focus of demyelination. The asymmetric ocular sizes, right was larger, was also part of the spectrum of phakomatosis, however, no ocular venous angioma was obvious.

**D: Neuro, Head & Neck Imaging****(P)D-07****Neurological Manifestations of Erdheim Chester Disease. Clinical, Radiologic and Histopathologic Findings.**

ROHANA NAQI  
 MUHAMMAD AZEEMUDDIN  
 M. NADEEM AHMAD

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
 E-mail: rohana.naqi@gmail.com*

**INTRODUCTION:** Erdheim Chester Disease (ECD) is characterized by the presence of lipid-laden histiocytic infiltration of multiple body systems<sup>1</sup>. Involvement of the dura or orbit is very rare. We report a rare case of non-langerhans histiocytosis, consistent with ECD in brain, which presented with lesions resembling multiple meningiomas. MR imaging demonstrated multiple extra-axial masses along the bilateral cerebral convexities, intraventricular region, tentorium and falx. An unusual feature of this case is the presence of similar mass in the ventricle. To the best of our knowledge this has not been described previously.

**CASE REPORT:** A 55 years old female patient, known hypertensive was admitted with generalized tonic clonic seizures, fever, cough and drowsiness. Detailed work-up done and she was diagnosed to have diabetes insipidus. She underwent MRI Brain with Gadolinium which revealed multiple extra-axial masses along the bilateral cerebral convexities, intraventricular region involving occipital horn of left lateral ventricle and along tentorium and falx. These showed isointense signals on T1- weighted, hypointense signals on T2-weighted images. Post contrast images showed intense homogenous enhancement of masses. Based on these findings a most probable diagnosis of meningiomatosis was suggested. To confirm the diagnosis of meningiomas, the patient was subjected to biopsy of lesion. A diagnosis of xanthogranulomatous lesion was made. Correlating with the clinical and radiographic features, these lesions were consistent with manifestations of ECD.

**DISCUSSION:** In ECD, bone marrow involvement affects long bones metaphyses symmetrically. Retroperitoneal space, periaortic area, skin and brain involvement have been described. ECD rarely involves the Central Nervous System. CNS involvement may be revealed by diabetes insipidus, cerebellar syndrome, exophthalmos due to retro-orbital masses, and symptoms consistent with extra-axial masses<sup>2</sup>.

**CONCLUSION:** We describe a case of ECD presenting as multiple extra-axial lesions that appeared similar to meningiomas. This entity should be considered in case of multiple dural lesions.

**D: Neuro, Head & Neck Imaging****(P)D-08****Choroid Plexus Lipoma, A Rare Entity.**

AMANULLAH KHAN  
 AYUB MANSOOR  
 BUSHRA REHAN

*Department of Radiology, Liaquat National Hospital, Karachi, Pakistan  
 E-mail: manikhan46@yahoo.com*

**ABSTRACT:** Intracranial lipomas are rare and usually benign in their course. We report a very rare case of intracranial lipoma in choroid plexus, diagnosed by CT and MRI. This case is reported now because the incidental diagnosis of intracranial lipoma is likely to increase due to advanced neuroradiological techniques such as CT and MRI.

**INTRODUCTION:** Intracranial lipomas are very rare tumors, accounting for

0.1-1.3% of all brain tumors, and for no more than 0.08% of tumors found on autopsy. Although the pathogenesis is controversial, they are believed to be congenital in origin. The first case of cerebral lipoma was reported by Rokitansky as an accidental finding at autopsy in 1856. Sosman diagnosed the first case in a living patient in 1939.

They are mostly found in the Midsagittal region, the most common of all being the vicinity of the corpus callosum, where approximately half of the total are found. Other sites where they have been reported to occur include the choroid plexus, the quadrigeminal cistern, the interpeduncular cistern, the ambient cistern and the cerebello pontine cistern.

**CASE REPORT:** The patient was a 51 year old female she had complained of headache. There was no history of seizures, vertigo, visual impairment, intellectual disturbances, hemiplegia. The neurological examination was unremarkable.

Unenhanced CT scan revealed a 0.7cmx 0.6cm area of homogeneous fat attenuation in the left choroid plexus.

The MRI was also performed using CSE T1W images, FSE T2W images, FLAIR and CSF T1W1 with fat saturation method was performed, showing a strong signal in left choroid plexus with CSE T1W1 and FLAIR, low signal on T2W1, while the signals from the fatty tissue were completely suppressed by the chemical shift selective images. No accompanying anomalies were observed.

As a result the CT demonstrated a lesion in the left choroid plexus suggesting a Lipoma and was confirmed on MRI. The patient was managed conservatively.

**D: Neuro, Head & Neck Imaging****(P)D-09****Asymptomatic Atrophy of Cerebellum in Long Term User of Phenytoin.**

MUHAMMAD IMRAN SIDDIQUI

*Department of Radiology, Liaquat National Hospital, Karachi, Pakistan  
 E-mail: imrandow@hotmail.com*

Cerebellar changes have been reported in relationship to epilepsy alone as well as to phenytoin therapy for the control of seizures. A 17 years old female has had epilepsy and taken phenytoin since the age of 3 years. Currently she presented with complaint of headache, although serum phenytoin level was lower than that of therapeutic range and there was no episode of seizures since years. On examination no cerebellar symptoms were found, her magnetic resonance imaging of brain revealed atrophic changes of cerebellum with normal MRA. It was suspected that a cerebellar atrophy occurred during medication with phenytoin. Long term use of phenytoin can cause cerebellar atrophy even if serum phenytoin level is low with out any cerebellar symptoms.

**D: Neuro, Head & Neck Imaging****(P)D-10****Imaging Features of Multiple Sclerosis on MRI**

JAVERIA MUNIR  
 NAJAMUDDIN

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan  
 E-mail: j\_munir82@hotmail.com*

**INTRODUCTION:** Multiple sclerosis is an idiopathic inflammatory demyelinating condition of the central nervous system that is generally considered



to be autoimmune in nature. The disease commonly presents in young adults and affects twice as many women as men. It is characterized pathologically by demyelination and subsequent axonal degeneration. White matter tracts are affected, including those of the cerebral hemispheres, infratentorium, and spinal cord. MS lesions, known as plaques, may form in CNS white matter in any location; thus, clinical presentations may be diverse. Continuing lesion formation in MS often leads to physical disability and, sometimes, to cognitive decline.

Magnetic Resonance Imaging with Gadolinium contrast, especially during or following a first attack, can be helpful in providing evidence of lesions in other parts of the brain and spinal cord. A second magnetic resonance scan may be useful at least three months after the initial attack to identify new lesions and provide evidence of dissemination over time. MS lesions appear as areas of high signal, predominantly in the cerebral white matter or spinal cord, on T2-weighted images. MRI scanning is useful for detecting structural pathology in regions that can be difficult to image by computed tomography, such as the posterior fossa, craniocervical junction, and cervical cord.

**SUMMARY:** Radiologically, the use of MRI is revolutionizing the investigation, diagnosis, and even the treatment of MS. MRI scan is abnormal in almost all patients who have clinically definite MS and usually it is the only imaging modality needed for imaging patients with MS.

## D: Neuro, Head & Neck Imaging (P)D-11

### Suprasellar Extraventricular Neurocytoma

RANA SHOAIB HAMID  
QURAT UL AIN HADI  
IMAAD UR REHMAN  
ZAFAR SAJJAD

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: rana.shoaib@aku.edu*

**INTRODUCTION:** Central neurocytomas are rare tumors commonly seen in young adults within the ventricular system. Very rarely these masses may be found in extraventricular locations, in which case they are termed extraventricular neurocytomas (EVNs). We report a case of 36 year old patient with EVN who presented as a large tumor in suprasellar location. On MR imaging it closely mimicked a meningioma.

**CASE:** A 36 years old lady presented with hot flushes, headache and vertigo for one year. On presentation there was no neurological deficit. Her MRI brain with contrast showed a heterogenous lobulated soft tissue mass in the midline in suprasellar region causing moderate hydrocephalus. The mass appeared predominantly isointense to grey matter on T1 and on T2 weighted images and showed homogenous post contrast enhancement. There was diffusion restriction in the mass but no hemorrhage or calcification. The sella and pituitary gland were normal. On MR spectroscopy there was elevated choline peak and a suppressed NAA peak. Based on imaging findings diagnosis of suprasellar meningioma was made and patient underwent surgery. Post operative histopathology was consistent with EVN.

## D: Neuro, Head & Neck Imaging (P)D-12

### Acute Necrotizing Encephalopathy with Typical MRI Findings: A Case Report

MUHAMMAD ZEESHAN  
KIRAN HILAL  
QAZI SAAD BIN KHALID  
DARAKHSHAN KANWAL  
YOUSUF HUSEN

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: muhammad.zeeshan@aku.edu*

**INTRODUCTION:** The Acute Necrotizing Encephalopathy of Childhood is a rare neurological entity occurring in infants and children, predominantly in Far East Asian countries including Japan, Taiwan and Korea. The diagnostic criteria which has been proposed consisted of acute onset encephalopathy with convulsions, lack of CSF pleocytosis/increased blood ammonia, symmetric multiple brain lesions and exclusion of other resembling diseases, like hypoxia, hemolytic-uremic syndrome, prolonged hypotension, intoxication, severe head injury, neurodegenerative disorders or metabolic diseases. The findings of neuroimaging include multifocal, symmetrical lesions showing T2 prolongation in the thalami, in the brainstem, tegmentum, periventricular white matter, putamina, and cerebellar and cerebellar white matter. The disease has been described in the literature, however, very few cases has been reported from the South Asian countries. This case showed classical MRI findings of Acute Necrotizing Encephalopathy of Childhood.

**CASE SUMMARY:** A 3-year-old male child presented to Emergency Department of Aga Khan University Hospital Karachi, with complaints of intractable vomiting and seizure activity. On examination, he was found to have spastic quadraparesis with brisk reflexes. MRI of the brain was performed which revealed bilateral, symmetrical abnormal signals in dorsal part of midbrain and pons, thalami, supra and infratentorial deep white matter, hyperintense on T2-weighted and FLAIR sequences, hypointense on T1-weighted sequences, without any significant enhancement. On diffusion weighted imaging, these lesions also showed diffusion restriction, suggesting cytotoxic edema. The thalamic lesions showed markedly central low signals on T1 and hyperintense signals on T2-weighted sequences, suggesting central necrosis. Single voxel MR spectroscopy from these lesions showed inverted double lactate peak, most likely because of necrosis.

On the basis of these classic MRI findings the diagnosis of Acute Necrotizing Encephalopathy was made. Follow up MRI was performed after 2 months interval which showed improvement in the midbrain and thalamic signals with persistent abnormal signals in the cerebral and cerebellar periventricular white matter.

## D: Neuro, Head & Neck Imaging (P)D-13

### Joubert Syndrome: A Rare Genetic Disorder

KHAIR MUHAMMAD SHAIKH  
MAHIRA YOUNIS  
KALEEM UR REHMAN  
S. A. ALI ANWAR NAQVI  
S.ADIBUL HASAN RIZVI

*Department of Radiology, Sindh Institute of Urology and Transplantation, SIUT,  
Karachi, Pakistan  
E-mail: shaikhkm@hotmail.com*

**OBJECTIVE:** The disorder is characterized by absence or underdevelopment of the cerebellar vermis and a malformed brain stem (molar tooth sign). The

most common features include ataxia (lack of muscle control), hyperpnea (abnormal breathing patterns), sleep apnea, abnormal eye and tongue movements, and hypotonia. Other malformations such as extra fingers and toes, cleft lip or palate, tongue abnormalities, kidney, liver abnormalities and seizures may also occur. There may be mild or moderate retardation. Joubert syndrome is one of the many genetic syndromes associated with syndromic retinitis pigmentosa. The syndrome was first identified by pioneering pediatric neurologist Marie Joubert in Montreal, Canada in 1968, while working at the Montreal Neurological Institute and McGill University.

**CONCLUSION:** We report a 08 year old male who presented with renal failure and developmental delay with unconsciousness. His CT-scan brain showed enlarged and horizontally oriented superior cerebellar peduncles along with an elongated pontine-midbrain junction giving appearance of a MOLAR TOOTH. Hypoplasia of vermis was noted resulting in prominent CSF space in that region. Approximation of both cerebellar hemisphere was seen. Above all findings are diagnostic of JOUBERT SYNDROME

## D: Neuro, Head & Neck Imaging (P)D-14

### Computed Tomographic Findings in Fungal Sinusitis with Severe Visual Loss in Uncontrolled Diabetes

SHAHPER AQEEL  
MUHAMMAD AQEEL BABRI

*Department of Radiology, Itefaq Trust Hospital, Lahore, Pakistan  
E-mail: drshahpe@yahoo.com*

**PURPOSE:** Rhinocerebral mucormycosis is a rare life threatening fungal infection observed in immunocompromised patients especially diabetics. Invasive fungal sinusitis can present atypically with severe visual loss with minimal orbital inflammation. We report five cases of patients with rhinocerebral mucormycosis confirmed histologically. Our study confirms the necessity of early diagnosis of orbital apex syndrome when clinical and CT findings are suggestive.

**MATERIALS AND METHODS:** This is a retrospective study including 5 diabetic patients (4 women and 1 men) aged from 50 and 60 years. All five patients had uncontrolled diabetes and presented with orbital symptoms (unilateral loss of vision, diplopia) and two patients with neurological findings. All of our patients underwent computed tomography (CT) scan of the paranasal sinuses. MRI was performed in two patients with neurological findings. When available, MRI allowed a more precise evaluation of the orbital and cerebral extension.

**RESULTS:** Unilateral ethmoido-maxillary sinusitis with involvement of atria was noted in 4 out of 5 cases. In only one patient there is isolated involvement of sphenoid sinus. All patients presented with orbital involvement showing densification of retro-orbital fat, thickening of optic nerve and blurred margins of optic nerve and vessels on CT. Cavernous sinus and suprasellar abnormality along with cerebral involvement was noted in 2 cases (cerebral ischemia: 2 cases). The diagnosis of mucormycosis was based on endonasal biopsy.

**CONCLUSION:** In immunocompromised poorly controlled diabetics presenting with ophthalmic symptoms unilateral sinusitis may point to invasive fungal sinusitis. Imaging findings (CT & MRI) are subtle and easily missed. CT scan is an initial cross sectional imaging usually performed and attention to these subtle CT findings can guide to reach a correct diagnosis.

## D: Neuro, Head & Neck Imaging (P)D-15

### Patau Syndrome

MUMTAZ MALIK  
NAUREEN HADI  
KISHAN KAYAN RAO  
NIGHAT SHAH

*Aga Khan Hospital for Women & Diagnostic Centre, Kharadar, Affiliated with AKUH, Karachi, Pakistan  
E-mail: mumta.malik@aku.edu*

Patau Syndrome: A case of holoprosencephaly associated with cyclops, proboscis & polyhydramnios diagnosed by ultrasound in second trimester scan.

**INTRODUCTION:** Early diagnosis of structural abnormalities would help in timely management according to the type of anomaly and its impact on the survival of the fetus. Ultrasonographic criteria such as presence of single ventricular cavity and hydrocephaly, and the absence of the butterfly sign are the most important warning signs for holoprosencephaly in the first trimester ultrasonography, while in second trimester comprehensive anomaly scan shows Cranio-Facial structural deformities includes single horse shoe shaped ventricle without mantle posteriorly (Lobar) or a common ventricle that is fused only posteriorly (Semi-lobar), Cyclops and proboscis etc. Often associated with central lips or cleft palate, intra uterine growth retardation & trisomy 13 is a common association. The aim of this case presentation is to demonstrate the early detection of holoprosencephaly during the first trimester scanning of patients and its evaluation within the current context of the literature on this anomaly.

**CASE PRESENTATION:** The Case study was conducted at Fetal Medicine Section -Radiology Department Aga Khan Hospital & Diagnostic Centre -Kharadar. We report a congenital anomalous fetus with a lobar holoprosencephaly, prenatally diagnosed by two dimensional sonography at the 30.6 weeks of gestational age. An unbooked case was admitted in OBS/GYN. with complaint of preterm labor pain and spotting P/V since 02 hours. The patient, 20 years of age, Para 0+0, 53 kg of weight, BP-100/80 mmHg, strong family marriages in family. Early ultrasound showed a singleton, viable embryo of 9.6 weeks (out side scan could not be evaluated for brain and facial anomalies or could not measure Nuchal Translucency). The patient was examined in our ultrasound department, the sonographic features are the presence of a single cyst of ventricle in posterior (brain anomaly), mobile soft tissue tubular structure of nose located at the mid of forehead and just above the centrally located conjoint eyes (Cyclops), associated with whole body skin thickness, male sex fetus, polyhydramnios and placenta located on fundus & no any intr or extra blood collection seen at the time of scan. A male baby was delivered on 15-01-2010 with 1.3 kg weight and multiple anomalies such as centrally located eyes & nose (with Uni-orifice) located at middle of the forehead, but baby expired within one hour after birth.

**CONCLUSION:** The diagnosis of the structural anomaly of fetus as early as 18-22 weeks results in parents counselling and preparation for acceptance of a baby with malformation and/or timely management of the disorder

## D: Neuro, Head & Neck Imaging (P)D-16

### Ocular Sonography in Children

TAHIR MAHMOOD  
MUHAMMAD NAWAZ

*Department of Radiology, The Children Hospital & Institute of Child Health, Lahore, Pakistan  
E-mail: khyberskp@yahoo.com*

**PURPOSE:** To discuss the examination technique of ocular sonography and the diagnostic features of common ocular pathology in children.

**MATERIAL & METHODS:** Examples of confirmed pathology from the Sonography Files of "The Children Hospital & Institute of Child Health, Lahore" from June 2009 to December 2009 were selected. Images are correlated with other imaging modalities performed and available pathological specimens to highlight the diagnostic features.

**TECHNIQUE:** Longitudinal and transverse views of the globe were obtained through the closed lids with conventional coupling gel. Sterilized gel was used if there is an open wound. A standoff gel block or ample amount of gel were used to image the near field structures. High resolution linear-array (11 to 15 MHz) transducer is used. Supplementary colour and Duplex Doppler were performed when a mass lesion is detected. Images were selected from the stored cine-loop record for hard copies.

**INDICATIONS:** Congenital anomalies (presence and status of the globe), opaque media such as hyphaema, cataract, leukokoria, intraocular tumour, infection, ocular trauma and foreign body.

**CONCLUSION:** High resolution real time ocular sonography is diagnostic for most of the ocular pathologies in children and should be used as first imaging modalities of choice.

#### **D: Neuro, Head & Neck Imaging (P)D-17**

##### **Literature Review to Investigate if Duplex Sonography can Replace Intra-arterial Angiography for Selecting Patients with Symptomatic Carotid Artery Stenosis for Carotid Endarterectomy**

MARYAM TAYYAB  
AMAILA RAMZAN  
NAJAMUDDIN  
ZIA FARUQUI

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan*  
E-mail: m\_tayyab58@yahoo.com

**OBJECTIVE:** Duplex Ultrasound is a widely used imaging modality for detecting and characterizing carotid arterial atherosclerotic disease. In contrast to conventional intra-arterial angiography, Carotid Duplex Ultrasound (CDU) has evolved as the most accurate diagnostic modality for non-invasive evaluation of internal carotid artery lesions, providing detailed information about the location and degree of stenosis, flow dynamics, and vessel wall condition. The objective of this literature review was to investigate if CDU can replace intra-arterial angiography for selecting patients with symptomatic carotid artery stenosis for carotid endarterectomy (CEA).

**METHOD:** Electronic databases namely MEDLINE, CINAHL Pubmed Central, The Cochrane Library, Science Direct, Radiology, BJR and Stroke were searched for searching literature. Search terms like duplex sonography, Doppler sonography, non-invasive, angiography, diagnostic accuracy, symptomatic carotid artery disease, endarterectomy and other synonymous terms were used. Inclusion and exclusion criteria were applied to filter the search results in order to remove irrelevant studies. Studies were critically appraised using Standard for Reporting Diagnostic Accuracy Studies (STARD) criteria. Ten studies were identified for inclusion in the review.

**RESULTS:** Of the ten studies included in the review, five report adequacy of (CDU) as the only imaging investigation for selecting suitable patients that might benefit from CEA while the other five are of the opposite opinion. CDU does not provide some information available only on angiography (Chen et al., 1997). This includes suspected occlusion, high carotid bifurcation, intracranial aneurysms, plaque ulceration and tandem lesions, and have been identified as

major reasons for the change in the management of patients being considered for CEA by most of the studies.

**CONCLUSIONS:** There is no direct and staunch evidence to suggest that CDU can be used in the same way as angiography to differentiate between patients who can benefit from endarterectomy and those in which the benefit of CEA would be limited.

#### **E: Chest and CVS Imaging (P)E-01**

##### **HRCT Evaluation of Pulmonary Pathologies: A Pictorial Review**

KAUSAR ILLAHI BUX  
ANEELA SHEEBA  
SAIMA IMRAN  
TARIQ MAHMOOD

*Department of Radiology, Jinnah Postgraduate Medical Centre, Karachi, Pakistan*

E-mail: bella7392@yahoo.com

**INTRODUCTION:** High-Resolution Computed Tomography (HRCT) is a widely used technique to image various lung pathologies. Compared to helical CT, HRCT uses a narrow beam collimation to take thin slice images of the lung parenchyma. This protocol produces extremely high definition images of lung alveoli, airways, interstitium, and pulmonary vasculature. HRCT is used to image and lung lesions, and to obtain accurate measurements of the attenuation of a solitary pulmonary nodule or masses.

The diagnostic accuracy of HRCT is further increased by concurrent clinical evaluation. Unlike the chest radiograph HRCT provides cross-sectional images and the extent of disease is therefore much more readily appreciated than on CXR.

**AIM:** The aim of this exhibit is to review the various patterns of lung diseases find on HRCT examinations done in our department.

#### **E: Chest and CVS Imaging (P)E-02**

##### **Preoperative Chest Radiography in Patients Scheduled for Elective Surgery**

AMAILA RAMZAN  
MADIHA MAJEED  
NAJAMUDDIN  
ZIA FARUQUI

KHURRAM AFTAB

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan*

E-mail: amyla-r@hotmail.com

**PURPOSE:** Routine preoperative CXR is not indicated in patients aged <60 years old undergoing non-cardiothoracic surgery. The yield of abnormalities increases in patients >60 years but is still low if patients without known cardiorespiratory disease are excluded.

Many pre-operative chest radiographs contribute little to patient management in elective surgery. The Royal College of Radiologists has formulated guidelines but these are often not followed.

This audit can help to reduce unnecessary radiography by encouraging the stricter application of these guidelines

**MATERIAL AND METHODS:** 140 patients who were scheduled for elective surgery were randomly included in the study with no age or gender preference. The age ranged from 2- 74 yrs. 84 were males and 56 were females.

**RESULTS:** Out of these, chest x ray was requested for 72(51%) patients. According to RCR guidelines, CXR was unjustified in 60(83%) patients. However, imaging was justified in 12(16%) patients. The anomalies were detected in 12 CXRs. None of these was significant. Findings did not led to preoperative changes in management in any of the cases; no delays or cancellations occurred. The CXR request form was inadequately filled by the referring services in all patients, without mentioning the justification for the procedure.

**CONCLUSION:** Preoperative chest X RAY should be ordered in patients scheduled for elective surgery according to RCR criterion. My co-authors and I give permission to publish this abstract in PJR Conference Issue and conference abstract book

### **E: Chest and CVS Imaging (P)E-03**

#### **Role of Pet CT in Staging Non Small Cell Lung Carcinoma**

JAVERIA MUNIR

ZIA. S. FAROUQI

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan*

*E-mail: j\_munir82@hotmail.com*

**PURPOSE:** Lung cancer is a common disease and is a leading cause of death in many countries. Integrated positron emission tomography (PET)/computed tomography (CT) is an anatomic-metabolic imaging modality which combines two different techniques: CT, which provides very detailed anatomic information; and PET, which provides metabolic information. The purpose of this study was to determine the role of dual-modality positron emission tomographic (PET)-computed tomographic (CT) imaging, as compared with CT alone, in the locoregional and distant staging of non small cell lung cancer.

**MATERIALS AND METHODS:** Prospective data was collected of all patients who were referred for staging of biopsy proven non small cell lung carcinoma to the radiology department from March 2010 to August 2010 for conventional staging plus PET-CT or conventional staging alone. 10 patients with non small cell lung cancer underwent staging with combined fluorine 18 fluorodeoxyglucose PET/CT and CT alone. Out of these 7 were male and 3 were female. Age range was 30-73. The disease stage was determined by using TNM and American Joint Committee on Cancer staging systems.

**RESULTS:** Overall tumor stage was correctly classified as 0-IV with CT in 4 patients (40%) and with PET/CT in 6 (60%) patients. PET/CT findings when compared with CT findings led to a treatment change for 60% of patients. Primary tumor stage was correctly determined in more patients with PET/CT than with CT alone.

**CONCLUSIONS:** Use of dual-modality PET/CT significantly increases the number of patients with correctly staged non small cell lung cancer and thus has a positive effect on treatment.

### **E: Chest and CVS Imaging (P)E-04**

#### **Can Virtual Bronchoscopy Replace Fiberoptic Bronchoscopy? Initial Experience at Tertiary Care Hospital**

RAZA SAYANI

AYUB MANSOOR

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan*

*E-mail: sayani\_raza@yahoo.com*

**OBJECTIVE:** The aim of this study was to compare the diagnostic accuracy of 3-D virtual bronchoscopy with that of fiberoptic bronchoscopy in patients who had symptoms of respiratory disorders.

**SUBJECTS AND METHODS:** Thirty patients underwent virtual bronchoscopic examination. Age range 1-70 years (mean 48 SD 15.2). All patients underwent thin section helical CT of the chest. The results of 3-D virtual bronchoscopy along with multiplanar reconstruction examination and axial images were compared with the findings of conventional bronchoscopy and correlated with surgical and pathological outcome where possible.

**RESULTS:** Total thirty patients were studied. Neoplastic lesions, strictures and polyps of the bronchi were detected with ease on virtual bronchoscopy and the information of the virtual examination compared well with that of conventional bronchoscopy. Axial CT images and multiplanar reconstruction images provided additional information not available from conventional bronchoscopy. Virtual bronchoscopy was true positive in twenty-four lesions. Further analysis revealed six cases were with strictures due to tracheobronchial tuberculosis or infection, eight were strictures due to carcinoma, five were endoluminal growths or polyps, three cases had nodes compressing the bronchi, one case had carcinoma of esophagus with tracheal extension and one had a congenital stricture. Virtual bronchoscopy was found false positive in one case, in which a polyp was misdiagnosed. Two endoluminal growths/ polyps were not appreciated on virtual bronchoscopy due to their small size and mild mucosal irregularity. Sensitivity, specificity, positive and negative predictive values were 96%, 50%, 92% and 66% respectively.

**CONCLUSION:** Virtual bronchoscopy represents a new noninvasive method for evaluating helical CT findings and offers the advantage of being able to visualize areas beyond even high-grade stenoses. However, at present it has its limitations as detection of subtle mucosal lesions, define small lesions and difficulty in differentiating retained secretions from true airway lesions. Fiberoptic bronchoscopy remains the standard modality for evaluating airway patency and mucosal lesions and performing biopsy and resection.

### **E: Chest and CVS Imaging (P)E-05**

#### **64-Slice CT Coronary Angiography: Risk vs Benefit**

RAZA USMAN

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan*

*E-mail: raja\_usmanraza@yahoo.com*

**OBJECTIVE:** It was aim to review the publish literature to compare the advantage of using 64-slice CT coronary angiography (CTCA) in detecting coronary artery disease (CAD) with the risk of developing radiation induced cancer, especially in young patients and patients with repeated multiple scans.

**MATERIAL & METHOD:** A search of PUBMED, MEDLINE and Science direct databases for English literature was performed. The search terms used were 64 slice CT coronary/cardiac angiography, coronary artery disease, diagnostic value, CT radiation dose, cancer risk and CT cardiac imaging. Only

related studies were selected for the review to compare the diagnostic value of CT coronary angiography with risk of developing radiation induced cancer.

**RESULTS:** Fifteen studies met the selection criteria and were included in this review. According to the results of some studies (9 out of 15), the 64 slice CTCA can be utilized as non-invasive tool with a high diagnostic value in the detection of CAD. However, the author of remaining studies (6 out of 15), found that use of 64-slice CTCA is associated with non negligible life time attributable risk (LAR) of cancer (estimated from BEIR VII report). This risk varies markedly and is considerably greater for women, younger patients and for combined cardiac and aortic scans.

**CONCLUSION:** This literature review found that 64-slice CTCA has a potential in detecting the CAD. However, dose reduction strategies such as electrocardiographically controlled tube current (ECTCM) should be utilized which minimize the radiation dose. The further research is also needed to evaluate the association of body habitus with radiation dose and cancer risk.

## **E: Chest and CVS Imaging (P)E-06**

### **Proteus Syndrome: Case Report of a Rare Congenital Disorder**

MADIHA MAJEED  
AMAILA RAMZAN  
ZIA FARUQUI

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan  
E-mail: madiha\_majeed@live.com*

**INTRODUCTION:** Proteus syndrome, also known as Wiedemann's syndrome (named after the German pediatrician Hans-Rudolf Wiedemann), is a congenital disorder that causes overgrowth and atypical development, often accompanied by over half the body.

Proteus syndrome is highly variable, and is named after the Greek sea-god Proteus, who could change his shape.

Since Dr. Michael Cohen identified it in only a few more than 200 cases have been confirmed worldwide, with estimates that about 120 people are currently alive with the condition. As attenuated forms of the disease may exist, there could be many people with Proteus syndrome who remain undiagnosed. Those most readily diagnosed are also, unfortunately, the most severely disfigured

**CASE SUMMARY:** 19 year old male presented with progressive bony skull prominences, associated with difficulty in speaking and severe kyphoscoliosis. He came to us for skeletal survey and imaging of brain and spine. Imaging revealed excessive soft tissue thickening, associated with hyperostosis of skull bones. There was asymmetric calvarial thickening with fatty tissue accumulation. Limbs and the pelvic girdle showed dysmorphic bones with focal expansion and bowing deformities. There was kyphoscoliosis of vertebral column. Findings of CT and MRI revealed normal brain and spinal cord morphology. Findings were consistent with Proteus syndrome.

## **E: Chest and CVS Imaging (P)E-07**

### **Computed Tomography and Image Morphology for Tuberculous Pericardial Abscess with Impending Pericardial Effusion and Cardiac Tamponade: A Case Report.**

RANISH DEEDAR-ALI-KHAWAJA  
SAULAT HASNAIN FATIMI\*

*Medical College, Aga Khan University Hospital, Karachi, Pakistan*

*\*Section of Cardiothoracic Surgery, Department of Surgery, Aga Khan University Hospital, Karachi, Pakistan*

*E-mail: ranish.deedarali.m07@student.aku.edu*

**INTRODUCTION/BACKGROUND:** Involvement of pericardium with tuberculosis is by far the most important cause of pericarditis in Indian subcontinent. Severe pericardial effusion with its manifestation as cardiac tamponade is only 7%. In the evaluation of pericardial disease, computed tomography (CT) and magnetic resonance (MR) imaging traditionally have been used as adjuncts to echocardiography (EC). Both CT and MR imaging provide excellent delineation of the pericardial anatomy and can aid in the precise localization and characterization of various pericardial lesions, including effusion, constrictive pericarditis and pericardial thickening.

**CASE SUMMARY AND CONCLUSION:** A 59-years-old male with no known co-morbidities presented with fever and cough for 14 days along with progressively worsening dyspnoea for 2 days. Chest x-ray (CXR) done a week prior to presentation was normal. His jugular venous pressure was up to his ears. Later CXR showed large cardiac silhouette with blunt costophrenic angles. CT chest showed large pericardial effusion with right sided pleural effusion. EC showed reduced left ventricular function with a large circumferential pericardial effusion with right atrial collapse.

Pericardiocentesis was attempted in cardiac care unit and after initial pus aspiration of 200 ml, patient became hypotensive and had pulseless electrical activity. He had a CPR for about 2 minutes and was resuscitated successfully. On median sternotomy, one liter of pus was evacuated from the bulging pericardium. The AFB smear and cultures confirmed the diagnosis of Mycobacterium tuberculosis. On five year follow-up, he had no recurrence of pericardial effusion or tuberculosis.

A careful systematic image analysis determines the optimal surgical therapy for the individual patient and minimizes the risk of perisurgical mortality. Because purulent pericardial fluid collections are an uncommon condition associated with a high mortality, early echocardiography and if necessary CT should be performed, as prompt institution of appropriate therapy is the best hope for decreasing mortality.

## **E: Chest and CVS Imaging (P)E-08**

### **Electronic Diagnosis of Smear Negative Pulmonary Tuberculosis**

VAQAR BARI

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan*

*E-mail: vaqarbari@aku.edu*

**OBJECTIVE:** Electronic Diagnosis of Smear negative pulmonary tuberculosis.

**METHODS:** Multi-country study including Philippines and Pakistan.

The study was conducted in Aga Khan University Hospital, Karachi, over a period of six months from December 16, 2009 to June 20, 2010. Two selected sites were Gambat in Khairpur and Orangi in Karachi. Patients suspected of

having pulmonary TB had an x ray Chest PA view and Sputum culture at the two sites.

Radiologist and Pulmonologist provided the opinion regarding diagnosis of TB. The diagnosis was provided to the treating physician by e-mail.

**RESULTS:** 104 cases from 2 sites were received by e-mail and these included cases categorized as Active TB, Bacterial pneumonia, Old healed TB and a few cases of suspected Bronchogenic carcinoma and Lymphoma.

**CONCLUSION:** Electronic diagnosis of Pulmonary TB is of great value for remote sites and underdeveloped areas.

## E: Chest and CVS Imaging (P)E-09

### To Determine the Usefulness of the Chest Radiograph in Reaching a Clinical Diagnosis in the Pediatric Inpatient Population at a Tertiary Care Centre in Karachi, Pakistan

SOBIA NIZAMI  
NAILA NADEEM

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan*  
E-mail: [sobia\\_sagittarius@yahoo.com](mailto:sobia_sagittarius@yahoo.com)

**OBJECTIVE:** To determine the usefulness of the chest radiograph in reaching a clinical diagnosis in the pediatric inpatient population at a tertiary care centre in Karachi, Pakistan.

**METHODOLOGY:** This was a retrospective chart review of pediatric inpatients (1 month -14 years) at Aga Khan Hospital, Karachi between April and June 2009. Radiographs ordered to assist diagnosis of disease, or as 'routine', were selected samples (n=326). For each radiograph, the clinical indication, the radiological diagnosis and the final clinical diagnosis were recorded and analyzed for frequencies and by cross-tabulation for concurrence.

**RESULTS:** The largest proportion of the clinical indications was the routine chest x-ray, at 39.3%. The most common diagnosis in radiology reports was 'no chest pathology' (39.9%). The second most common was 'pulmonary infection'. Almost 46.3% of the patients who had chest x-rays had no chest pathology in the clinical diagnosis. The greatest concurrence was found between the clinical indication 'fever and cough' with a radiological and clinical diagnosis of pulmonary infection (62.3% and 49.1% respectively).

**CONCLUSIONS:** A significant proportion of the radiographs ordered for pediatric inpatients were normal and not associated with chest pathology on clinical diagnosis. Strong clinical suspicion of pulmonary infection, denoted by fever and cough, had the highest likelihood of giving the same radiological and clinical diagnosis.

## E: Chest and CVS Imaging (P)E-10

### Prognostic Value of Stress-only Gated Spect Myocardial Perfusion Imaging: Time for Paradigm Shift

NOSHEEN FATIMA\*,\*\*  
MASEEH UZ ZAMAN\*,\*\*,\*\*\*  
A. SAMAD\*  
M. ISHAQ\*  
S. ZAHED RASHEED\*  
DAD J. BALOCH\*  
KAWISH REHMAN\*,\*\*  
JAVERIA BANO\*  
M. ASIF\*

*\*Dept. of Nuclear Cardiology, Karachi Institute of Heart Diseases (KIHD), Karachi, Pakistan*

*\*\*Karachi Institute of Radiotherapy and Nuclear Medicine (KIRAN), Karachi, Pakistan*

*\*\*\*Department of Radiology, Aga Khan University Hospital (AKUH), Karachi, Pakistan*

E-mail: [dr.nosheen\\_fatima@yahoo.com](mailto:dr.nosheen_fatima@yahoo.com)

Prognostic value of a normal rest-stress gated SPECT myocardial perfusion imaging (MPI) is well documented. A normal stress-only MPI study saves time, cost and avoids significant radiation exposure but its safety is questioned.

**AIM:** Compare the prognostic value of normal stress-only and rest-stress MPIs.

**PATIENTS AND METHODS:** This is a prospective study conducted at Nuclear Cardiology Department of Karachi Institute of Heart Diseases (KIHD) from December 2008 till May 2009. A rest-stress (same day) protocol was used in all patients but patients with lower pre-test probability for CAD in which stress (stress-only if MPI is normal) followed by a resting study (same day) if stress study is positive or equivocal. The protocol was decided by a board certified nuclear cardiologist. A dual head dedicated (Cardio MD, Philips) camera was used to acquire data. These patients / families were questioned on telephone regarding fatal or non-fatal myocardial infarction at 12-18 month.

**RESULTS:** Study included 265 patients (104 males and 161 females, mean age of  $52 \pm 10$  years) having a normal GSPECT studies (normal LV perfusion and function parameters). The stress-only cohort included 47 patients (13 males and 34 females, mean age of  $51 \pm 08$  years) while rest-stress cohort had 218 patients (91 males and 127 females, mean age of  $50 \pm 10$  years). On follow up (12-18 months, mean  $15 \pm 3.4$ ) only one death was reported among 265 patients (in rest-stress group due to fatal myocardial infarction). Negative predictive value (NPV) for stress-only cohort was 100% while it was 99.5% for stress-rest cohort ( $p = 0.382$ ).

**CONCLUSION:** We conclude that a normal stress-only GSPECT MPI has an excellent and comparable short term prognosis with a normal rest-stress study. We recommend using this protocol as routine in low risk patients to save time, reduce cost and avoid significant radiation exposure.

## E: Chest and CVS Imaging (P)E-11

### Primary Ewing's Sarcoma of the Lung – A Case Report

JAWED VAYANI  
JAVED MEHBOOB  
QADEERUDDIN  
ADNAN AHMED  
JAWAD AHMED  
ADNAN HASHMI  
TEHSEEN FATIMA

*Department of Radiology, Karachi Institute of Radiotherapy and Nuclear Medicine (KIRAN), Karachi, Pakistan*

E-mail: [jawedy@gmail.com](mailto:jawedy@gmail.com)

**INTRODUCTION:** Ewing sarcoma of the bone is the second most common

type of malignant bone tumor occurring in children and young adults, highly malignant primary bone neoplasm. Extraskelatal Ewing's sarcoma is exceptionally rare. We are presenting the case of Ewing's Sarcoma of the Lung, not locally reported yet.

**CASE SUMMARY:** Middle age man visited with a lung mass that had been detected incidentally on chest X ray. The chest PA and left lateral films revealed an approximately 3 cm size, well defined mass in right hemithorax. Computed tomography showed a complex heterogeneous mass with cystic spaces and smooth margin. The tumor had well enhanced margins on the contrast enhanced examination. Biopsy of which revealed EWING SARCOMA.

**DISCUSSION:** Ewing sarcoma of the lung or chest wall has had a difficult history as far as classification and nomenclature are concerned, and it may not yet be over. Originally a small round blue cell tumor of the soft tissues of the chest was described and became known as an Askin tumor or peripheral primitive neuro ectodermal tumor. All three entities are now thought to belong to the same tumor family, now referred to as Ewing sarcoma family of tumors (ESFT).

**RADIOGRAPHIC FEATURES:** Despite their aggressive nature, these tumors tend to (at least initially) displace adjacent structure (e.g. lung/diaphragm). Direct invasion is however seen especially in larger tumors. On CT these tumors are typically ill-defined with heterogeneous attenuation and multiple areas of cystic degeneration. Solid components demonstrate enhancement following the administration of contrast. Pleural effusions are common, but are usually small. Calcification is uncommon. When these tumor arise in bone onion skin periosteal reaction may be evident. Typically these masses are heterogeneous on MRI with numerous areas of necrosis, degenerative cystic change and hemorrhage. Smaller tumors are more likely be homogeneous. T1W: iso or hyper intense to muscle. T2W: heterogeneous high signal, T1 (GAD): prominent heterogeneous enhancement. Treatment involves surgical resection and neoadjuvant chemotherapy +/- radiotherapy. The strongest predictor of outcome is the presence or development of distant metastases. In patients whose tumor is confined to the chest long term survival is achievable. Overall 5 year survival is between 15 - 48%.

## **E: Chest and CVS Imaging (P)E-12**

### **Esophageal Perforation in an Elderly Female with Atypical Presentation: A Case Report**

NAZIA SHAHID  
TALHA ZUBAIRI

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: nazia.shahid@aku.edu*

**INTRODUCTION:** Esophageal perforation is a life-threatening condition usually occurring as a complication of upper GI endoscopy, thoracic trauma or forceful vomiting. Boerhaave's syndrome is a transmural or full-thickness perforation of the esophagus. The esophagus is more prone GI organ because its walls lack serosa. Survival depends on rapid diagnosis and surgery. Investigations include CXR, CT chest, endoscopy and high pleural amylase. Findings from the initial CT examination may then raise suspicion of esophageal injury by showing mediastinal gas or fluid, esophageal thickening, or pleural effusion. The survival after perforation depends on rapid diagnosis and surgery. CT is recommended when perforation is strongly suspected despite normal abdominal or chest radiographic findings.

**CASE SUMMARY:** We report a case of 70 year old female with no known co-morbid, admitted at AKUH for elective vaginal hysterectomy. She was doing well until the fourth post-op day, when she complains of vomiting, shortness of breath and sudden chest pain. Patient was then shifted to radiology department for chest x-ray. Her initial chest x ray revealed, right sided hydropneumothorax,

whereas lung fields were clear. The radiograph raises the possibility of acute esophageal injury and for further evaluation CT chest with IV and oral contrast was advised which showed wide-open communication of the esophagus with the right pleural cavity below the arch of aorta with free spillage of contrast. A large right-sided hydropneumothorax with significant atelectatic changes and underlying consolidation was noted. Right sided chest tube was also noted in place.

Although this was an atypical location, because mostly esophageal perforation is associated with left sided pleural effusion. Diagnosis of Boerhaave's syndrome was given.

The patient was then rapidly shifted to the operation theater, where the surgery team urgently repair the esophagus and diagnosis was further confirmed.

## **F: Miscellaneous (P)F-01**

### **Does Radiology Department Contribute in Nosocomial and Cross Infection Incidents within a Hospital?**

SAIMA SHAFFAQUE  
ANNUM DAWOOD  
NAJAMUDDIN  
DR. ZIA FARUQUI

*Department of Radiology, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan  
E-mail: saimashaffaque@hotmail.com*

**PURPOSE:** The purpose of this study was to investigate if X-ray cassettes used during portable radiography could be a potential source of causing nosocomial and cross infection within the hospital environment.

**METHOD:** The study involved the swabbing of X-ray cassettes in a Radiology Department of a local hospital in Pakistan. The X-ray cassettes used for mobile radiography, Intensive Care unit (ICU), emergency and inpatient use were considered for this research. Thirty cassettes were swabbed to look for any bacterial contamination, also for the presence or absence of methicillin-resistant Staphylococcus aureus (MRSA). A mapping exercise was completed following the location of an X-ray cassette typically used in portable radiography. The exercise noted the level of direct contact with patient's skin and other possible routes of infection.

**RESULTS:** Results revealed that there were large levels of growth of samples taken from cassettes and developed in the Microbiology Department of the hospital. The mapping exercise in which the route of a 35/43cm cassette used for portable radiography was tracked, demonstrated that contact with patient's skin and potential pathogens or cross infection was a common occurrence while undertaking portable radiography.

**CONCLUSION:** The study concludes that X-ray cassettes/imaging plates are often exposed to pathogens and possible routes of cross infection since patient's skin often comes directly in contact with it. Therefore, cassettes/imaging plates are a potential source of cross infection and the Radiology Department may be partly responsible for occurrence of nosocomial or cross-infection incidents in the hospital.

**F: Miscellaneous****(P)F-02****Radiology Reports: What do the Clinicians Want?**

MUHAMMAD AKBAR BAIG

AZIEKAH IMDAD

NAILA NADEEM

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan**E-mail: akbar.baig@aku.edu*

**PURPOSE:** The radiology report is often the primary means by which radiologists communicate their findings to the referring clinicians. This study was designed to determine the quality of our radiology reports according to physicians and residents belonging to various departments of the Aga Khan University Hospital.

**MATERIAL AND METHODS:** A cross-sectional survey was undertaken recruiting consultants and post-graduate trainees belonging to various specialties of the Aga Khan University Hospital that were frequently involved in referral of patients to the Radiology department for investigations. A questionnaire was distributed which inquired specific details pertaining to the institutional format of radiology reports produced by our department. Data was entered in SPSS version 13 for analysis.

**RESULTS:** A total of 149 questionnaires were distributed to clinicians belonging to different specialties out of which 99 were returned (66.4 % response rate). A mean score of 5.9 (CI 95%) was given to report content and 5.8 (CI 95%) to report clarity. 46.5 % of clinicians felt it is acceptable to have "normal examination" as the full radiology report. 18.2 % stated the need to mention positive findings only. However, 98 % of clinicians preferred a complete and detailed final report.

**CONCLUSION:** It appears that the clinicians that replied to our questionnaire rated the quality of the Radiology reports which they receive as average.

**F: Miscellaneous****(P)F-03****A Multi Centre Study to Assess Knowledge of Radiologists and Radiology Residents Regarding the Management of Acute Anaphylaxis Reaction and Cardiopulmonary Arrest**

TARIQ ALAM

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan**E-mail: tariq.alam@aku.edu*

**OBJECTIVES:** In this study, we tried to assess the ability and confidence of radiologists in managing adult life support in cardiopulmonary arrest and acute anaphylaxis reactions.

**MATERIAL AND METHODS:** A questionnaire was used for assessing the knowledge of radiologists in managing an adult cardio respiratory arrest scenario. 175 radiology consultants and residents in 8 teaching hospitals in Peshawar, Islamabad, Lahore and Karachi participated in the study.

The questionnaire included basic demographic details and included eight questions aimed at assessing recent training, knowledge and confidence in the management of adult resuscitation (Resuscitation Council (UK) 2005 guidelines) and acute anaphylaxis.

**RESULTS:** Majority of the participants (93%) stated that they would feel confident to initiate life support, the average score from the questions assessing

life support procedure was 3 out of 8 with only 3% of participants answering all questions correctly. There was no correlation between grade of radiologist or year of residency and likelihood of a correct answer. Only 17% of radiologists attended basic life support course in the last 5 years. Those who had attended a course more recently performed well.

**CONCLUSION:** Based on our results, the radiology consultants and residents in Pakistan are unable to manage an adult cardio respiratory arrest scenario. In our opinion Basic Life Support training programs and regular refresher courses should be mandatory during FCPS training to maintain the required competency level for BLS.

**F: Miscellaneous****(P)F-04****Comparison of CT Radiation Dose in Pediatric Patients with Reference Levels from other Hospitals and Institutions: A Clinical Audit**

MUHAMMAD ZEESHAN

KIRAN HILAL

NAILA NADEEM

YOUSUF HUSEN

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan**E-mail: muhammad.zeeshan@aku.edu*

**PURPOSE:** To retrospectively evaluate the unnecessary avoidable radiation dose delivered to the paediatric patients during CT examinations.

**MATERIAL AND METHODS:** Total 23 pediatric patients (age range 1-15 years) who underwent CT examination during 2 month interval including February and March 2010 were evaluated. They were further divided according to age groups into different strata like >1 years, 1-5 years, 5-10 years and 10-15 years of ages. Dose length product (DLP) of different CT protocols including CT head, CT chest and CT abdomen and pelvis were separately calculated. Subsequently, effective doses were withdrawn from conversion coefficient given in the literature. These values were compared with the previously described values in the literature from international institutions and future recommendations were formulated.

**RECOMMENDATIONS:** A larger retrospective/ prospective study needs to be carried out based on a similar model to this audit in order to come up with a clearer picture of the hospitals radiation dose ranges in the pediatric population.

**F: Miscellaneous****(P)F-06****Duplex Doppler Ultrasonography in the Prospective Evaluation of Acute Urinary Obstruction: Can it Replace the Intravenous Urography?**

MUHAMMAD ALI

AMMAD HUSSAIN\*

M. TAMEEM AKHTAR

*Department of Radiology, Ziauddin Medical University Hospital, Karachi, Pakistan**\*Bedford Hospital, UK.**E-mail: docali80@hotmail.com*

**PURPOSE:** To determine the role of duplex Doppler ultrasonography (DDU) in patients with acute unilateral renal obstruction.



**SUBJECTS AND METHODS:** 161 patients with suspected renal colic due to urolithiasis were evaluated by duplex Doppler ultrasonography (DDU) followed by Intravenous urography (IVU). The mean intra arterial Resistive index (RI) and the difference of mean resistive index between both kidneys (delta RI) were determined for each person. RI value of  $\geq 0.70$  and delta RI value of  $\geq 0.06$  were taken as discriminatory threshold for obstruction. IVU results were considered the 'gold standard' against which renal DDU findings were compared.

**RESULTS:** IVU showed both kidneys to be normal in 51 patients and unilateral ureteric obstruction in 110 patients. The mean RI for obstructed kidneys was 0.67(0.048) which was significantly higher (p value<0.05) than mean RI of contralateral normal kidneys 0.59(0.04). The mean delta RI in patients with unilateral ureteric obstruction was significantly higher than that in patients with both kidneys normal, at 0.076(0.03) and 0.03(0.05) respectively. In patients with complete obstruction, sensitivity of RI and delta RI was 77.5% and 92.5% with a specificity of 84.3% and 90.1% respectively. In patients with partial obstruction the sensitivity of these values was 22.8% and 62.8% with a specificity of 84.3% and 90.1%.

**CONCLUSION:** Delta RI is more sensitive and specific than RI in acute renal obstruction. However, due to relatively low sensitivity for detection of partial obstruction they cannot replace IVU as standard imaging technique.

**Imaging Technologist's Seminar  
26th Annual Conference 2010  
Radiological Society of Pakistan  
Abstracts**

## **INVITED LECTURES (T)**

### **T-01**

#### **Updates In Radiology (Key Note Lecture)**

PROF. M. TAMEEM AKHTAR

*Department of Radiology, Ziauddin University Hospital, Karachi, Pakistan*

*E-mail: profmtakhtar@live.com*

Since the invention of general radiography in 1895, there have been a lot of changes especially the sudden burst of invention of diagnostic modalities after the invention of computers.

The conventional radiography, which kept the domain of imaging under its control for more than 80-85 years abruptly converted to Computed Radiography followed immediately by Digital Radiography adding to improvement of quality of the imaging & also reducing the radiation exposure.

The development of Ultrasound machines in early 80s, starting from gray scale to Color & Power Doppler followed by Contrast enhanced Ultrasound & 3D/4D. This was not enough, the umbrella of US embraced interventional, Transesophageal echocardiography, endosonography & the latest addition of intravascular & elastography ultrasound.

The totally different group of cross sectional imaging diagnostic tools which resulted in winning Nobel prizes to the inventors of both the Computerized Tomography & Magnetic Resonance Imaging.

In the late 70s & early 80s, the CT scan started with 1st then 2nd followed by 3rd & the 4th generation has now turned to a different group of technology, the multi-detector technology, again starting very low at 4, then 16 then the most popular the 64 slices which enabled the radiologist to get access not only to the coronary arteries but all the vessels of the body. This has gone up to 256 even dual head CT scanner to reduce the scanning time but given relatively higher radiation doses. The addition of 3D CT resulted in better management of trauma patients especially of the complex bones as well as with metallic prostheses.

The late 80s blasted with a new technology non radiation based, Magnetic Resonance Imaging which is a rapidly developing modality that is progressing on daily basis with lots of new applications & protocols. The strengths of equipment ranging from 0.02 T to 3.0T, with structural imaging & assessing functional capability. The different types include superconducting as well as open magnets.

The new development of PET CT scan has added yet another tool to the list of diagnostics equipment, which has also helped in diagnosis & treatment follow-up hence improving the life of cancer patients.

### **T-02**

#### **Introduction Of Health Care Quality In Radiology & Radiography**

DR. SYED MAIRAJUDDIN SHAH

*Medical Director, Outreach Services Aga Khan University Hospital, Karachi, Pakistan*

*E-mail: mairaj.shah@aku.edu*

Quality is defined as "Fitness for use" – Dr. Joseph M Juran, "Conformance

to requirements" – Dr. Philip B Crosby, "Never ending cycle of continuous improvement" – Dr. Edward Deming, "The totality of features and characteristics of a product that bears on its ability to satisfy a given need" – The American Society for Quality (ASQ) and "Degree to which a set of inherent characteristics fulfills requirements – ISO 9000:2008. With any of these definitions the essence is that the needs of customers must be understood and satisfied. Customers expect a product or service to match or exceed their needs and expectations, supplied on time at a price they can afford to pay.

Health Care Quality is defined as "the degree to which health services for individuals and populations increases the likelihood of desired health outcomes and are consistent with current professional knowledge" – The Institute of Medicine (IOM), and "Healthcare that is accessible, effective, safe, accountable, and fair" – Agency for Healthcare Research and Quality (AHRQ).

In the context of Radiology and Radiography there are many International accreditation standards that can be used to improve the quality of these services. Application of international patient safety goals including identifying patients correctly, improving effective communication, improving the safety of high alert medications, ensuring correct-site, correct-procedure, correct-patient and reducing the risk of patient falls may enhance patient safety initiatives significantly.

International standards related to Radiology and Diagnostic Imaging Quality Improvement Programs are useful in improving the outcomes of such services. The program standards addresses conformance to the local laws and regulations, 24-hours access to services, back-up arrangements in case of service failures, radiation safety, staff qualifications and competencies, timely reporting of results, equipment management, supplies management, and quality control mechanisms.

### **T-03**

#### **Radiation Biology And Hazards**

DR. MUHAMMAD TALHA A. ZUBAIRI

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan*

*E-mail: talha.zubairi@aku.edu*

The ionizing radiation (X-rays) has harmful effects when it is sufficiently intense. The harmful effects range from skin burns to cancer, however, the benefits derived from diagnostic application of x-rays in medical field are enormous. It is therefore the job of the imaging technologist to produce high quality images with minimum radiation exposure.

Body tissues respond to radiation differently, for example, reproductive tissues are more sensitive to radiation than nervous tissue. The study of radiobiology is directed principally to the establishment of radiation dose-exposure relationships. The principal radiation interaction within the body is with water, however, the ultimate damage is to the target molecule, Deoxyribonucleic acid (DNA), which controls cellular metabolism and reproduction.

In humans the response to radiation can occur within months of exposure called Early effect or after several years called Late effect.

**T-04****Radiation Protection & Patient Safety**

MR. SYED MANSOOR NAQVI

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: mansoor.naqvi@aku.edu*

Significant increase in the usage of the ionizing radiations in healthcare industry need a continuous effort to keep the radiation workers updated and refreshed on the radiation protection needs. The ionizing electromagnetic radiation like X-rays and gamma rays when interact with tissue can cause radiation injury. These radiation effects may be divided as deterministic and stochastic. This is most important for low radiation areas like the Radiology and Nuclear Medicine departments in a hospital. The purpose of this talk is to refresh the radiation protection awareness amongst the radiation workers in healthcare industry. The talk will cover the need and justification of radiation usage, cardinal principles based on ALARA of radiation protection, golden rules to follow for self-protection and for patient protection and basic regulatory requirements in this regard.

**T-05****Contrast Media FAQ's And Handling Reactions**

DR. MAHIRA YOUNUS

*Department of Radiology, Sindh Institute of Urology & Transplantation (SIUT), Karachi, Pakistan  
E-mail: mahiraabubakar@gmail.com*

RADIOLOGICAL CONTRAST MEDIA:

Malpractice issues related to the use of contrast media.

Contrast media used in Radiological Department including: Iodinated (ionic and non ionic) contrast, Gadolinium, Ultrasound contrast, Bowel contrast, Air, CO<sub>2</sub>.

Types of contrast media reactions, and their treatment.

Complications that can occur after injecting contrast including nephrotoxicity.

Prevention of the reactions including risk factors.

Steroid Preparation in case of allergy and asthma.

**T-06****Career And Service Structure Of Allied Health Science In Pakistan**

MR. AMIN RAJANI

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: rajani.amin@aku.edu*

Quality in Health care service is achieved through a team work, it is not only Medical Faculty who is responsible for quality care to its patient, but vitally important is the nurses, support staff and other Allied Health Professionals

Allied Health Professionals are the caring professionals who practice a dynamic, progressive, and supportive profession deeply rooted in patient care. The characteristics of these professions should reflect in their practice through

Knowledge, Clinical Proficiency, Communication and Accountability and that is why the Dynamic development in the fields has made it more important today for the organized structure program for them to sustain themselves in the coming year's challenges and achieve acceptable professional standards.

The important areas of concern today are

- Non qualified professionals
- Limited Training Institutes
- No uniform Structured Training Program
- No Emphasis on Professional Development
- Career Growth???
- Affiliation with Foreign Institution
- Accreditation of these Professions at National level
- International level

**F-01****Role Of Low-dose Whole Chest CT (LDCT) In Patients Who Under Went Cardiac Ct Angiography Examination**

AMIN SHAH

ZAFAR JAMIL

AMANULLAH BAIG

WASIM A. MEMON

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: amin.shah@aku.edu*

**BACKGROUND/OBJECTIVE:** The purpose of this study is to show the usefulness of nongated low-dose chest CT in coronary CT Angio patients. Coronary CT angiography is primarily performed to evaluate cardiac vasculature and anatomy, but CCTA can not depict extra cardiac structures which may be influential in the management of the patient, such as great vessels, lungs, mediastinum, and upper abdomen, because CCTA is performed with a small field of view (FOV) to maximize the spatial resolution of the cardiac structures. The aim of our study is to highlight the role of low-dose whole chest CT in the detection of incidental extra-cardiac disorders and also to discuss whether to include LDCT in the CCTA protocol.

**MATERIALS & METHODS:** The study was carried out from Jan 2009 to Dec 2009. This was a retrospective study conducted in CT scan suite radiology department Aga Khan University Hospital. 64 slicer MDCT Toshiba Aquilion machine was used. 100 patients were included in the study with age range between 40 – 70 years, these patients under went CCTA along with LDCT. Data was collected through Radiology Information System (RIS) AKUH

**RESULTS:** In this study, a total number of 32 (32%) extra-cardiac findings were detected in LDCT. The findings include infiltration, effusion, lymphadenopathy, mass, and emboli and many others such as hepatic or paravertebral abscess, pneumothorax, adrenal masses, aortic aneurysms, thyroid pathologies, pulmonary edema, pneumonia and mesenteric inflammation, gallstones, and solitary pulmonary nodule.

**CONCLUSION:** Clinically significant extra cardiac findings are common in patients undergoing CCTA with a considerable number of extra cardiac findings being detected only on LDCT. We recommend performing whole thorax LDCT as an adjunct along with CCTA protocol because it can change management of the patient.

**F-02****Assessing Patient Satisfaction With Radiological Services In A Large Tertiary Care Hospitals Of Karachi**

SHAHEEN DHANANI

NASIMA KHAN

AMIN SHAH

M. TAMEEM AKHTAR

*Department of Radiology, Ziauddin University Hospital, Karachi, Pakistan**E-mail: shaheen.dhanani@aku.edu*

**INTRODUCTION:** The quality of health care should be measured increasingly include patient's satisfaction, which is one of the important dimensions. However a single explanation of why surveys of patient's views have a suddenly become such a visible & regular aspect of the health care organization. Patient satisfaction is an increasingly useful measure in accessing consultations and patterns of communication (such as the success of giving information, of involving the patient in decisions about care, and of reassurance). Secondly, patient's feedback can be used systematically to choose between alternative methods of organizing or providing health care (such as length of consultation or arrangements for out of hours care). This survey considers some of the potential problems & strategic questions involved in surveys of patient's satisfaction & analyzing a survey of patient's views.

**OBJECTIVE:** The objectives of the study are to determine the level of patient's satisfaction with radiological reception and services, to document areas of dissatisfaction and to develop appropriate recommendations for the Department.

**MATERIAL & METHODS:** All patients scheduled (or unscheduled) for any diagnostic or interventional procedure in different reception areas of the Departments of several tertiary care hospitals including AKUH, LNH, ZMU, JPMC, Abbasi Shaheed, Civil hospital were eligible for the survey conducted over the months of September in 2010. Patients completed a semi-structured self-administered questionnaire during their reception stay, during and after their procedure. During the survey period, \_\_\_\_\_ numbers of patients were eligible; \_\_\_\_\_ numbers of patients were refused. The group surveyed consisted \_\_\_\_\_ numbers of females & \_\_\_\_\_ numbers of males.

**RESULT:** In process

**F-03****Awareness Of Thermoluminescent Dosimeter (TLD)/Film Badge In Radiation Workers & Availability Of Radiation Protection Devices In Different Organizations**

ZAFAR JAMIL

MASOOD AHMED

MUDABBIR ZAIDI

AMIN SHAH

SHAHEEN DHANANI

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan**E-mail: zafar.jamil@aku.edu*

**BACK GROUND/OBJECTIVE:** Increasing awareness of the risk of ionizing radiation exposure to health workers has led to numerous changes in practices, radiation doses of occupational personnel exposure from diagnostic x rays, were measured using thermo luminescent dosimeters (TLD) or film badge. The awareness of TLD/Film badge should be adequate in radiation workers because of biological effects of ionizing radiation. A thermo luminescent dosimeter (TLD) or film badge is a type of radiation dosimeter. A TLD measures ionizing radiation exposure by measuring the amount of visible light emitted from a crystal in the detector when the crystal is heated. The amount of light emitted is dependent upon the radiation exposure. On the other hand, our survey also

demonstrated the availability of radiation protection devices (shielding) in different organizations, because these devices are one of the basic requirement for the radiation workers to save them from radiation. The purpose of this study is to evaluate the level of awareness regarding thermo luminescent dosimeter or film badge in radiation workers & availability of radiation protection devices in different organizations.

**MATERIAL AND METHOD:** This is a cross sectional study that was carried out among four tertiary care hospitals in Karachi Pakistan. Data was collected by questionnaire that was filled by radiation workers. Questionnaire regarding basic knowledge of TLD/film badge & checklist of the radiation protection devices that were available in their respective organization.

**RESULTS:** The study is currently under process so result will be tabulated after study completion

**F-04****Awareness of Knowledge & Perception of The Impact of Contrast Media and It's Risk Factor in Radiological Staff**

AFSHEEN MAHMOOD

SHAHEEN DHANANI

M. TAMEEM AKHTAR

*Department of Radiology, Ziauddin University Hospital, Karachi, Pakistan**E-mail: afsheen.mahmood@aku.edu*

**OBJECTIVE:** To understand whether radiological staff is sufficiently aware of the incidence, impact and risk factors of contrast media reaction and whether they are taking sufficient measures to prevent reaction among patients undergoing IV contrast procedures.

**INTRODUCTION:** Using of contrast media in both diagnostic imaging and interventional studies continues to increase. It is very important to reduce these incidents. First, the patients at risk should be identified prior to the administration of a contrast medium, so that appropriate measures can be taken. Contrast media are agents used in radiology to enhance or create the necessary visual contrast in an image between the organs, vessel or tract in which they are present & the surrounding tissue in the body. Most acute severe adverse reactions to CM occur within 20 minutes of injection. For this reason, the patient should be monitored for a minimum of 20 minutes after CM injection. Furthermore, any radiological staff that is responsible for an imaging study that requires the use of CM must be able to recognize and treat acute adverse reactions.

**MATERIAL AND METHODS:** The study was conducted in total number of six institutes. The present review covers awareness of contrast media in private vs. government hospitals. Ratio was 3:3 of private and government hospitals. Private hospitals named by 'A', 'B' and 'C' and government hospitals named by 'D', 'E' and 'F' which are given by the authors. Total number of ten questionnaires gave to the radiological staff in each institute as well as five questionnaires to the students or trainees in each institute.

**RESULT:** In process

**P-01****Importance Of Anatomy Classes For Student Radiographer**

ABIDA FAISAL  
AMIN SHAH  
SADIA SHAHID  
AMIN RAJANI  
WASEEM AKHTER

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: abida.faisal@aku.edu*

**OBJECTIVE:** The anatomy is the key subject in the curriculum of student radiographer. The aim of this study is to evaluate and analyze the importance and purpose of the anatomy classes among the student radiographer.

**MATERIALS AND METHODS:** It was a cross sectional descriptive study.

This study was conducted in Aga Khan University Hospital and Ziauddin Hospital. This study recruited 39 students' radiographers, out of which 23 were female and 16 were male students who attended the radiography programs from July 2007 to 2009 and from July 2008 to 2010 batches. Out of 39 students, 15 students were selected randomly from each hospital. Data was collected from examination department of both hospitals.

Data was recorded, entered and analyzed using SPSS version 17.

**RESULTS:** Over all anatomy results of both hospitals were 80%. Male students radiographer result were 60% and female were 76%. The over all result of Aga Khan University was 75% out of which the result of female candidates was 60% and the result of male candidates was 70%. Over all result of Ziauddin hospital was 70%. Out of which the result of female candidates was 70% and the result of male candidates was 78%.

**CONCLUSION:** Through this study, we observed that the result of Aga Khan University Hospital is better than Ziauddin Hospital. It shows our anatomy curriculum is reliable for students of radiography.

**P-02****Comparison Of Mri Knee With Plain Films Of Patients With Non-specific Knee Pain**

AMIN SHAH  
M. TAMEEM AKHTAR  
ZAFAR JAMIL  
IMRAN AHMED

*Department of Radiology, Ziauddin University Hospital, Karachi, Pakistan  
E-mail: amin.shah@aku.edu*

**INTRODUCTION/OBJECTIVE:** The role of imaging of knee is an important adjunct to clinical examination. Symptoms such as pain, swelling, locking and mechanical stiffness are often reported by patients and can make an accurate diagnosis difficult by clinical examination in isolation. The purpose of the study is to evaluate the efficacy of MRI knee in comparison with plain film of patients presenting with non-specific knee pain.

**MATERIAL & METHODS:** This multicentre study was carried out between Jan 2009 to Dec 2009 in two tertiary care hospitals in Karachi. Retrospective comparison study of MRI knee with plain radiography of the knee in patients with non-specific knee pain was undertaken. Data were collected from RIS (Radiology information system) Ziauddin university hospital, and Aga Khan University hospital. Karachi Pakistan. We randomly selected 200 patients who presented with non-specific knee pain. All the patients had a standard radiographic

examination of the knee employing anteroposterior and lateral projections and then an MRI examination. The corresponding pair of reports was analyzed and a comparison was made between the two.

**RESULTS:** For the radiographic examination, abnormalities were reported in 30 (15%) cases. The remaining 170 (85%) cases were reported as normal. For the corresponding MRI examinations, abnormalities were reported in 87 (43.5%), out of the 170 patient's they were mainly intra-capsular lesions of various types. There was no incident when the radiographic examination revealed an abnormality and the MRI examination did not.

**CONCLUSION:** MRI is the most accurate diagnostic imaging method in patients presenting with knee pain and suspected internal derangement. This study has demonstrated that patients with non-specific knee pain imaged with plain radiography will have a very high probability of a negative finding and an unnecessary dose of radiation irrespective of any soft-tissue anatomical derangement present.

**P-03****Factors Influencing Trainee Radiographers' Choices In Considering Rural Radiography Career**

ABIDA FAISAL  
AMIN SHAH  
WASEEM AKHTER  
SADIA SHAHID  
GULNAZ SHAFQUAT

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: abida.faisal@aku.edu*

**OBJECTIVE:** The objective of our study is to identify the factors that should be instituted to attract and retain student radiographer in rural areas.

**STUDY DESIGN:** Cross Sectional

**MATERIALS AND METHOD:** It was a cross sectional study conducted at Aga Khan University Hospital and Ziauddin University Hospital training period of 2008 to 2010. Total 37 trainee radiographers participated from both campus were included in this study. Out of 37 trainee radiographer 65 % (24) were from the Aga Khan University and Hospital and 35% (13) were from the Ziauddin University Hospital. Majority of the student said they are willing to work in rural areas. Data was collected through a questionnaire and recorded on preset Performa and was subsequently entered and analyzed using SPSS version 17.

**RESULTS:** The factors that are associated to retain student radiographer in rural areas includes, providing good environment, Handsome salary, best equipment, accommodation, free transport and medical facility. Earlier consideration for promotion and provision of recreational facility. Out of 37 participated students 51 % were female and 49 % were male. Interest of rural radiography from both campus Aga Khan and Ziauddin Hospital, 79 % strongly agree and 21% disagree.

**CONCLUSION:** This Study has shown the student consider working in rural areas provided the working conditions are improved upon. By this study we came to know if you provide hand some salary and good working environment to the radiographer who trained in the well equipped department on tertiary care hospital will provide their services to rural area.

**P-04****Awareness Of Panic Radiograph In Radiographers & Role Of Radiographer In Panic Reporting**

AFSHEEN MAHMOOD  
SHAHEEN DHANANI  
MASOOD AHMED  
KISHOR RAJU  
NAUREEN NIZAMUDDIN

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: afsheen.mahmood@aku.edu*

**INTRODUCTION:** Radiographer panic reporting is an ongoing issue in radiology department's world wide, and is accompanied by some complex and controversial themes. In this study, we evaluate the accuracy of radiographers in the reporting / communicating of panic radiographs to radiologists. Radiographer should be able to discriminate abnormal panic radiographs and immediately inform available radiologists who will further acknowledged patient's referring doctor. Radiographers should know panic cases of every modalities of imaging because radiographers also play an important role in communicating in that situation. Some of the panic cases of different modalities which radiographers should be aware are given below:

**Regarding General X-rays:** Bowel perforation with free air, tension pneumothorax, life threatening misplaced tube or line, bronchial foreign body

**Regarding CT Scan:** Aortic dissection, bowel perforation with free air, intracranial bleed, significant solid organ laceration, tension pneumothorax

**Regarding MRI:** Brain or cord tumor with significant mass effect, spinal cord compression.

**Regarding Ultrasound:** Ectopic pregnancy, ovarian/ testicular torsion, significant solid organ laceration.

**OBJECTIVE:** To evaluate the awareness level of panic radiograph & its diagnosis in radiographers as well as importance of role of radiographer in immediate reporting / communicating the panic radiograph to radiologists.

**METHODOLOGY:** This survey was conducted at Agha Khan University Hospital in the month of September & October 2010. The total number of \_\_\_ questionnaires was distributed to radiographers in the department of Radiology. The questionnaire based on spotting of panic images of chest and abdominal radiograph as well as on MCQs related to panic cases & responsibility to report them to radiologist. \_\_\_% was not interested to attempt. \_\_\_% questionnaires returned with answers. \_\_\_% of them were female n \_\_\_% were males.

**RESULT:** In Process

**P-05****Unnecessary Radiation To Non-thoracic Structure On NICU And Pediatric Chest Radiograph**

AFSHEEN MAHMOOD  
AMIN RAJANI  
RAZA SAYANI  
KISHOR RAJU

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: afsheen.mahmood@aku.edu*

**OBJECTIVE:** To evaluate the unnecessary or additional radiation exposure to non-thoracic structure during neonate intensive care unit, pediatric wards and out sides pediatric referral.

**INTRODUCTION:** Though the responsibilities of radiographer have been the subject of debate for some years, traditionally the common arguments have largely been related to the imaging process, subsequent image interpretation, patient care and radiation protection. Many reports have indicated that infants and young children have a higher sensitivity than older children and adults to radiation exposure and the potential for harmful side effects. A recent publication from our centre revealed a disturbing finding of significant increased incidence of under collimation and inclusion of non-thoracic structure (facial bones, neck, upper extremities, and upper abdominal area) and multiple reasons of repetition (due to wrong marker placement, under exposure, blurring of image, positioning error, artifact) in NICU and on pediatric chest radiograph.

**METHODOLOGY AND RESULTS:** The audit is carried out at Aga Khan University Hospital Karachi. A clinical audit of total 150 Chest radiographs including of NICU, Peads wards (Bo & Do) and outside referrals was conducted. 50 from NICU pediatric radiograph, 50 from pediatric ward and 50 from OSR Radiographs were analyzed for extent of radiation field to non-thoracic regions. This was accomplished by delineating the most superior and inferior portions of the body included within the boundaries of collimation on each chest radiograph. Radiographic reports were reviewed to determine whether valuable data were obtained from the imaging of these non-thoracic structures. Reasons were analyzed for repetition of radiographs, positioning error, blurring of image, artifact and underexposure and results are presented.

**P-06****Incidence Of Hematoma After Femoral Artery Punctures In Patients Undergoing Diagnostic Or Interventional Angiography**

AMIN RAJANI  
RANA SHOAB  
ZAHID ANWAR  
AZMEENA SIKANDAR

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: rajani.amin@aku.edu*

**OBJECTIVE:** The purpose of this audit is to assess the incidence of hematoma after femoral artery puncture in patients undergoing diagnostic or interventional angiography.

**MATERIALS AND METHODS:** This prospective audit was carried out over a period of 4 months from January 1st 2009 to April 30th 2009. All patients undergoing diagnostic or interventional angiography via femoral route were included in this study. Patients who were heparinized during the procedure or disoriented patients who were unable to follow the instructions were excluded from the study. Predisposing conditions like CLD, uremia, coagulopathy and hypertension were also considered during evaluation.

**RESULTS:** Eighty two patients were evaluated in this audit including 57 males and 25 females. Age ranged from 9 to 80 years. In 68 cases 5 FR sheath was used for the procedure and in 11 cases 6FR sheath was used. Seven and 8 FR sheaths were used in 2 and 1 patients respectively. Sheath removal and puncture site compression was given by senior faculty in 7 patients, by VIR fellow in 51 patients, by residents in 14 patients and by trained nurses in 10 cases. Arterial puncture site hematoma was found in 1 patient in which 5 FR sheath was used and compression was given by a resident. The other predisposing factors like CLD, uremia, coagulopathy and hypertension were not related to hematoma formation.

**CONCLUSION:** We observed a very low incidence (1.21%) of arterial puncture site hematoma in patients undergoing diagnostic or interventional angioplasty. The frequency is far less compared to published data and practice standards guideline.

**P-07****Assessment Of Errors In Placement Of Radiological Markers On X-ray Films**

AMIN RAJANI  
GUL MEHAK  
RANA SHOAIIB  
ABDUL TASNEEM

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: rajani.amin@aku.edu*

**INTRODUCTION:** A marker is used on radiographs for indicating left or right side of the body and the position and orientation of the patient in relation to the film and x ray tube.

Correct marking of the X ray film has substantial impact on interpretation as the body is generally symmetrical, the right-sided structures are quite similar in appearance to left-sided structures except that they are mirror-images or reversals of one another therefore it is necessary for the film reader to know which side of the body is being viewed.

If a film is improperly marked and the physician interpreting the film recognizes the error he will often try to locate the technologist who performed the study to obtain clarification. When the question cannot be resolved in this manner, the patient may be recalled for a repeat examination which involves time, inconvenience, expense and additional radiation exposure, and if the error goes undetected, inappropriate medical treatment may be the result.

We performed a retrospective analysis at radiology department of Aga Khan University to determine the current practice of placement of radiological markers on X ray films and to assess the errors in marker placement and identify factors which may lead to wrong marker placement.

X ray examinations of 217 patients (age range 8 months to 71 years) were examined for marker placement, which were performed at the radiology department from 12 May 2010 to 15 July 2010. The films were assessed for marker presence or absence and position of marker. Data was recorded on proforma and analyzed on SPSS.

**P-08****Does Every Second Counts In Emergency Imaging? Causes Of Delays In Portable x-rays In Emergency Department Evaluated, From Radiographers' Prospective**

MUHAMMAD ASIF BILAL  
AMIN RAJANI  
RAZA SAYANI  
ABDUL TASNEEM

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: asif.bilal@aku.edu*

**OBJECTIVE:** The objective of this study is to evaluate and identify the causes of delay in performance of portable x-rays in a tertiary care hospital's emergency department.

**MATERIAL AND METHODS:** An observational study was conducted at Emergency Department of Aga Khan University Hospital. The data collection was from the date 23rd November 2009 to 28th November 2009.

The study included all patients for whom portable x-rays were performed in emergency department. Rests of the portable x-rays performed in wards were excluded.

Every portable x-ray of emergency is included to complete the required sample. Different factors as age, shift time, whether the patient is prepared or not, radiology request is ready or not and whether staff is available for support during x-ray and the radiographer's designation were evaluated.

**RESULTS:** 100 patients were included out of which approximately 18% were not prepared. In 18 % requests were not ready. In majority staff was not available for support. Most of the times radiographers have back log of pending portable x-ray cases elsewhere while they are performing X-rays in ER. In study it was found that 53(96%) patients had pending x-rays in wards while the radiographers were performing X-rays in ER.

**CONCLUSION:** In our limited experience we observed that there was insufficient support from emergency staff in facilitation of performance of portable x-ray; Also patient's radiology order request forms were not made by requesting physicians in advance as well as patients are not ready for x-rays because of the other procedures going on same time.

**P-09****Uses Of Pineapple Juice As A Negative Oral Contrast Agent In Magnetic Resonance Cholangiopancreatography**

IMRAN AHMED  
ABIDA FAISAL  
RANA SHOAIIB  
JAVED RAZA

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: ahmed.imran@aku.edu*

**OBJECTIVE:** To determine the usefulness of pineapple juice as a negative contrast agent in Magnetic Resonance Cholangio-pancreatography.

**MATERIALS AND METHODS:** It was a retrospective study. Total numbers of patients were 10. Patients were required to fast for 6 to 8 hours before the examination, to permit gall bladder filling and promote gastric emptying. Pre-contrast (pineapple juice) images were obtained followed by oral administration of 250 ml of commercially available pineapple juice. All MRCP studies were performed with technique using a heavily T2 weighted turbo spin echo (TSE) sequence which is currently one of the most widely used multilane 3-d MR technique, having a high spatial resolution and fast imaging capacity.

**RESULTS:** Images were evaluated by senior radiologist. In seven patients (70%) images were degraded by fluid in GI tract. Administration of pineapple juice resulted in clear anatomy and pathology

**CONCLUSION:** Pineapple juice is an affordable, cheap, available, safe and efficient oral negative contrast agent for MRCP which reduce the signal intensity of fluids in the gastrointestinal tract. There were marked improvements in contrast and image between pre and post images.

**P-10****Computed Radiography Decrease Rejection Rate As Compare Manual Radiography**

KHALID ALWANI  
GUL FAREED JUMANI  
KISHORE RAJU  
NOUREEN HAMEED

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: khalid.alwani@aku.edu*

**INTRODUCTION:** Computed radiography is modern technique which set

good contrast and use many tools to save and print good films after exposing x ray. Computed radiography also save films which help patient for record and reprint it when patient need but in manual radiography you can't change contrast after x ray which increase rejection rate and radiation dose

**OBJECTIVE:** Computed radiography decrease rejection rate as compare manual radiography

**METHOD:** In Jan 2008 till May 2008 in Clifton medical services we under goes many patients and we do 8597 x ray manual films from which 407 films rejected at 4.7 % rejection rate but in Sep 2008 till Jan 2009 we under goes many patients and we do 5655 computed radiography x-ray films from the total 41 film rejected at the rejection rate of 0.7%. In 5 months from Jan 2008 till May 2008 in Clifton medical services 81 over exposed films ,48 under exposed films , 124 positioning errors films ,3 fogged films, 22 artifact films , 130 other films in the total of 407 rejected manual films but in Sep 2008 till Jan 2009, 4 over exposed films, 7 under exposed films , 6 positioning error films ,0 artifact ,7 double print films , 17 other films rejected in the total of 41 in 5 months .

**CONCLUSION:** So in 5 months computed radiography has 4.0% less rejection rate than manual radiography and also decrease repetition exposure and patient get low dose instead of repeating the x ray

**RESULT:** So computed radiography is the better solution then manual radiography in terms of saving films and cost of the films to increase revenue of the department and save patients from radiation dose by repeating the x ray because of bad exposure

## P-11

### Evaluation Of Proper Documentation Of Informed Consent In Radiology Department

NAUREEN NIZAMUDDIN  
AMIN RAJANI  
RAZA SAYANI  
SHAZIA PARVEEN

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: naureen.nizamuddin@aku.edu*

**INTRODUCTION:** Medical informed consent is essential to the physician's ability to diagnose and treat patients as well as the patient's right to accept or reject clinical evaluation, treatment, or both. Medical informed consent should be an exchange of ideas that buttresses the patient-physician relationship.

**OBJECTIVE:** The objective of this study is to evaluate proper documentation of informed consent in radiology in order to improve good quality services and to reduce negligence and malpractice along with patient safety and satisfaction.

**STUDY DESIGN:** Retrospective study.

**METHODS & MATERIAL:** The Audit is carried out at Radiology Department of Aga Khan University Hospital, Karachi.

Total no. of 100 consent forms are evaluated randomly, 20 from each radiological speciality, which includes General Radiography (IVP, Fluoroscopy, and Mammography), VIR, CT, MRI, Ultrasound, and Nuclear Medicine. This includes consent forms of CC (Consulting Clinic), OSR (Outside Referred), Emergency(ER) and Wards Patients (C1, C2, B1, D2, PW, D0). Different prospectives are evaluated whether proper identification of patient, location, age, gender, person taking consent, person giving consent, identification of radiologist performing the procedure etc have been notified or not.

**RESULT:** The evaluated consent forms for required data in different section revealed almost complete documentation and details will be presented.

## P-12

### “Level Of Awareness; Amongst Health Care Workers And General Public Regarding Their Blood Group In Case Of Responding To Emergency Situation Be It For Their Family And Friend Or Any Disaster Situation In Pakistan”

SHAHEEN DHANANI  
AMIN RAJANI  
RAZA SAYANI  
AFSHEEN MEHMOOD

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: shaheen.dhanani@aku.edu*

**OBJECTIVE:** To assess the level of Awareness; amongst health care workers and public regarding their blood group in case of responding to emergency be it for their family and friend or any Disaster situation in Pakistan.

**BACK GROUND:** Life in today's world is unpredictable, you never know when you, your beloved family member or citizen of your nation could come across any unfortunate life threatening condition, which could be because of Road Traffic Accident, Bomb Blasts or any Natural Calamity, like flood or earth quake. It is vitally important in this time of crisis that help should be provided to victims in shortest possible time. Amongst the first few things required to save life is the wide access availability of blood for transfusion, which at times could become critical when there are beloved ones and other heartfelt people who want to help and support but are unable to do so instantly as they are unaware of their blood group. Blood drawn from these individuals costs the time of checking the blood group and then matching it with victims who require them. The targets of the study is to raise awareness of the importance of regular, voluntary, unpaid blood donor programme in ensuring that safe blood is available to every patient who needs it. Encourage healthy donors who have given blood when required by a family or community member to become unpaid donors and to communicate importance of blood donation as when a person donates blood, his/her bone marrow is stimulated to produce new red cells. This will make our blood forming organs to function more effective and active cells.

**METHOD & MATERIAL:** The authors develop two level “A” & “B”. Level “A” is for health care workers & level “B” is for general public. Prospectively both groups are evaluated with a simple questionnaire which includes the information amongst health care workers and general public regarding their blood group and blood donation.

**RESULTS:** In process.

## P-13

### Awareness Of Radiation Protection In Clinical And Non-Clinical Staff

SHAHEEN DHANANI  
AFSHEEN MAHMOOD  
AMIN RAJANI  
FAREED JUMANI

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: shaheen.dhanani@aku.edu*

**INTRODUCTION:** Increasing concern has recently been expressed in the literature that the referring clinical and non – clinical staff knowledge of radiation doses incurred during radiological procedure is inadequate. Such information may be particularly relevant when the expansion of imaging technology is considered. To assess this, a survey was conducted of the awareness of radiation dose and risk among health professionals.



**OBJECTIVE:** "To evaluate the level of awareness about radiation protection in clinical & non-clinical staff."

**METHOD & MATERIAL:** The authors develop two questionnaire level "A" & "B". Level "A" is for radiation technologist & level "B" is for non-clinical staff of AKUH. The questionnaire of level "A" pertaining to radiation protection practices, procedures, dose limits & existing of national & international standards. The questionnaire of level "B" contained basic radiation protection, awareness from nurses of different wards, clinical receptionist, porters etc. 50% radiation technologist & 50% non-clinical staff (1:1) evaluated prospectively.

**RESULTS: SURVEY FOR NON- CLINICAL STAFF:** A total no. of 50 questionnaires were distributed in non-clinical area of radiology including radiological reception, ER, C1, B1. Out of which 86% questionnaires were returned with answers, 14% of them refused. **SURVEY FOR CLINICAL STAFF:** A total no. of 50 questionnaires were distributed in Radiology AKUH including radiographers and senior radiographers. Out of which 92% were returned with answer, 8% of them refused. \*55% males were evaluated. \*45% females were evaluated. \*13% were not interested to give their data. \*30% were senior radiographer. \*69% were radiographers & trainee radiographers.

**CONCLUSION:** Our survey demonstrated that the awareness level of non-clinical staff is 60% which is satisfied but they should have more knowledge because they have little bit exposure during portable x-rays & departmental procedures. Awareness level of clinical staff is 67.3% which is not satisfied because they are continuously working in radiation area so they need more attention regarding to the awareness of radiation protection. We increase this level by arranging different training sessions, workshops, quiz or by distributing pamphlet or handouts regarding to the hazards of radiation.

## P-14

### Report Delaying in MRI Section

ABIDA FAISAL  
IMRAN AHMED  
RANA SHOAIB HAMID  
SHEHZAD VIRANI

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: abida.faisal@aku.edu*

**OBJECTIVE:** To assess the rate of delaying in MRI reports due to patients recall and non availability of previous images.

**MATERIALS AND METHODS:** A retrospective study carried out from September 2009 to August 2010 at the Aga Khan University and hospital. Total no of 8137 examinations were performed during this period. 64 patients reports delayed in different MRI exam. Among those 64 patients, 39 were Male (61%) and 25 were female (39%). Outside referrals were 21 patients (32.8%), 33 patients were from clinic (51.6%) and 10 were inpatient (15.6%). Data was retrieved from MRI Recall patients log sheet. Data was collected recorded on preset Performa and was subsequently entered and analyzed using SPSS version 17.

**RESULTS:** Out of 64 delayed reports additional sequences were needed in 22 patients (35%). Previous record required in 17 patients. (26%) and contrast examinations were needed in 25 patients (39%).

**CONCLUSION:** This audit suggests that proper instructions and history of every patient and review of scan by radiologist before leaving from MRI suit is very helpful to minimize the delay in reporting.

## P-15

### Impact Of Radiographer's Personality Traits On Patients And Their Levels Of Satisfaction With The Radiological Services

SYED MUDABBIR ZAIDI  
AMIN SHAH  
ASAD JAFFARI  
NIDA HUSAIN  
TAHIR ABBAS

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: mudabbir.hussain@aku.edu*

**BACKGROUND/PURPOSE:** Radiographers have much patient interaction, so they must possess excellent communication skills, a dependable personality with mature and caring nature. Radiologic services are offered in various settings such as CT, MRI, Nuclear Medicine, General Radiography, Portable radiography, Mammography and ultra sonography. The purpose of this study is to evaluate the impact of radiographer's personality on patients and also measure the level of patients' satisfaction with radiological services.

**MATERIAL & METHODS:** The study was conducted in Radiology department of Aga Khan University hospital Karachi, Pakistan. Radiographers' personality profiles and level of patients' satisfaction with radiological services were collected by using questionnaire that were filled by patients or attendants accompanying them for the radiological procedure. Questionnaire were filled just after completed the exams.

**RESULTS:** The study is currently under process so results will be compiled later.

## P-16

### MRI Artifacts: Mechanism, Cause and Control

AMIN SHAH  
IMRAN AHMED  
ZAFAR JAMIL  
AMANULLAH BAIG

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: amin.shah@aku.edu*

**BACKGROUND/OBJECTIVE:** Magnetic Resonance Imaging (MRI) is widely used in medical diagnosis for its various advantageous features, such as high-resolution capability and the ability to produce an arbitrary anatomic cross-sectional images.

The purpose of this study is to show wide variety of artifacts routinely encountered on MR images. This study presents the cause, appearance, diagnostic effect, and available remedies for the artifacts that are most frequently observed on MR images and are of greatest clinical significance. Combined with routine preventive maintenance of imaging equipment, consistent quality control, and appropriate selection of imaging parameters, awareness of the manifestations of these artifacts will allow image quality and diagnostic interpretation to be optimized.

**MATERIALS & METHODS:** The study was carried out between June 2009 to May 2010. This is a retrospective study and was conducted in MRI Suite radiology department Aga Khan University Hospital. 1.5 Tesla Avanto Siemens machine was used. Total numbers of 100 MRI examinations were randomly included and data was collected from Radiology Pacs information system AKUH.

**RESULTS:** In this study a total number of 100 exams having different type of artifact such as , Artifacts, Zipper, , , , Susceptibility Artifacts , Effects Wrap around and others artifacts were detected.

**CONCLUSION:** Every artifact has a different cause and can distort clinical image. Clinically significant artifacts were detected in this study.

## P-17

### Usefulness Of Initial MRI Screening Form

IMRAN AHMED  
ABIDA FAISAL  
RANA SHOAB HAMID  
MUHAMMAD TAJAMUAL

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan*  
*E-mail: ahmed.imran@aku.edu*

**OBJECTIVE:** To evaluate and determine the importance and benefits of initial MRI Screening form.

**MATERIALS AND METHOD:** A retrospective study was carried out at the MRI section Aga Khan University Hospital from Jan 2010 to Jun 2010. 3870 examinations were performed during this time period. Pre-Screening forms were filled by all the patients.

**RESULTS:** On the basis of MRI screening forms 16 out of 3870 (0.41%) patients were cancelled due to following reasons. Cardiac pacemaker: 03 patients, Cardiac stent 01, Metallic fragments 03 patients, Bomb blast injury 02 patients, Bullet injury 03 patients, Metallic implant 04 patient

**CONCLUSION:** This Study has shown the efficacy of MRI pre-screening form. It is very important before MRI procedure. It prevents patients from hazards of magnetic field.

## P-18

### Heart: What Can Be Seen On Non Coronary Thoracic Multi Detector Computed Tomography Scan?

ZAFAR JAMIL  
AMIN SHAH  
WASIM MEMON

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan*  
*E-mail: zafar.jamil@aku.edu*

**OBJECTIVE:** MDCT systems with fast scanning capabilities can acquire images of the thorax with reduced cardiac motion artifacts, enabling improved evaluation of the heart and surrounding structures in the course of routine thoracic CT. This describes the principles of including an evaluation of the heart in the course of a chest CT examination in terms of both examination technique and image interpretation. In addition, both the normal appearances and some of the most common abnormal appearances of the cardiac structures will be described. By using cases collected from our hospital on multi-detector CT machines, we present a structured approach to assess the heart on routine thoracic CT.

**MATERIALS & METHODS:** The study was carried out between Jan 2008 to Dec 2008, this is a retrospective study, and this study was conducted on 64 slice MDCT, Radiology Department Aga Khan University Hospital. The Total number of 100 patients were taken undergoing thoracic CT. The data was collected from radiology information system (RIS) Aga Khan Hospital Karachi.

**RESULT:** 23 out of 100 patients have positive finding related to cardiac diseases including cardiomyopathy and ventricular aneurysms, the calculated ventricular ejection fraction and cardiac output Ventricular mass, plus analysis of myocardial, heavy laminar calcifications, large volume pericardial effusion, and anomalous origin.

**CONCLUSION:** Whilst gated cardiac CT no doubt provides superior imaging of some cardiac disease compared to conventional CT, extensive information is obtainable on multi-slice imaging. It is significant to develop a method for looking at the heart on thoracic CT.

## P-19

### Needle Stick Injury, Control And Prevention In Radiology

AMIN RAJANI  
RAZA SAYANI

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan*  
*E-mail: rajani.amin@aku.edu*

**INTRODUCTION:** The Radiology department performs diagnostic and therapeutic procedures for patient care. The Diagnostic procedures performed by the department also include invasive techniques with potential for transmission of microorganisms through various means among which one important mode is the Needle stick, which many a time is taken for granted by being unaware of potential danger of acquiring the life threatening viruses like Hep.B, Hep.C and HIV.

There is a possibility for the patients, their accompanying relatives and the health care staff to acquire an infection during their visit for Radiology services. These infections are a major source of avoidable morbidity, mortality and additional resource use. Many could be prevented by use of effective infection control practices. However, the theory-practice gap affects compliance with infection control procedures in the same way that it affects other areas of practice.

This paper discusses the application of an infection control program in Radiology Department as well as the audit of radiology staff through a data collection form, highlighting the percentage of awareness amongst the staff and the number of staff who had needle stick injury in past. This study explains why each aspect of the infection control and needle stick injury program is important.

## P-20

### The Usefulness Of Low-dose CT Pelvimetry And To Correlate The Results With Other Modalities

SYED MUDABBIR ZAIDI  
ZAFAR JAMIL  
AMIN SHAH  
WASIM A. MEMON

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan*  
*E-mail: mudabbir.hussain@aku.edu*

**OBJECTIVE:** To study the low dose CT Pelvimetry and correlate the results with other modality .Pelvimetry is the assessment of the female pelvis in relation to the birth of a baby. Traditional obstetrical services relied heavily on Pelvimetry in the conduct of delivery. Pelvimetry techniques include computed tomography (CT), conventional radiography, digital fluorography and magnetic resonance imaging (MRI). The first three techniques result in a radiation dose to mother and fetus which, depending on how the technique is performed.

**MATERIALS & METHODS:** The study was carried out between Jan 2009 to Dec 2009, this is a retrospective study. This study was conducted in Radiology Department Aga Khan University Hospital. The Total number of 50 patients were taken undergoing Pelvimetry procedure. The data was collected from radiology information system (RIS) Aga Khan Hospital Karachi.

**RESULT:** The suitability of CT for Pelvimetry was studied, for accurate measurement of the true conjugate and interspinous diameter, a lateral topogram and an axial CT slice were taken. The radiation dose was reduced from 1 mGy (in conventional system) to 0.1-0.2 mGy. The use of conventional X-ray Pelvimetry is restricted because of the potentially harmful effects of ionizing Radiation

**CONCLUSION:** Pelvimetry by computed tomography (CT) and by magnetic resonance imaging (MRI) is exact and simple techniques with low or absent ionizing radiation. These new techniques offer distinct advantages over conventional X-ray Pelvimetry. But on the other hand MR Pelvimetry is time consuming than CT Pelvimetry.

## P-21

### Occupational Stress Amongst Radiographers: Does Working In Private Or Government Hospitals Make A Difference?

AMIN SHAH  
MUDABBIR ZAIDI  
NIDA HUSAIN  
SHAHEEN DHANANI  
WASEEM AKHTAR

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: amin.shah@aku.edu*

**OBJECTIVE:** Stress is a common prevalent mental condition. Literature indicates that the prevalence and impact of stress among radiographers is high. No study has been written that focuses on the factors causing stress in radiographers. For the first time in Pakistan we want to evaluate the stress among radiographers. Our study encompasses the difference of stress levels in radiographer working in private and government hospital setups.

**MATERIAL & METHODS:** We conducted a cross-sectional study of two government (JPMC & Civil) and two private (Aga Khan University & Ziauddin University) hospitals' radiology departments. 20 radiographers were randomly selected from each hospital.

Results were compiled from questionnaires.

**RESULTS:** Of 140 questionnaires that were sent out 106 (75.7%) responded, 15(10.7%) did not responded and 19(13.5%) forms received were not completed. Of the 80 participants in private & government hospitals 70 (87.5%) were satisfied and 10 (12.5%) were not satisfied with their work. In government, sector job satisfaction level was higher than in private sector. The stress level was high in private sector and lower in government sector. Workload, low salary scale and lack of staff were major factors associated with stress. Sports/exercise and eating are the main factors to release stress.

**CONCLUSION:** We found more stress in private because of excess workload, long working hours, and low salary scale and staff shortage as causes of low satisfaction and high stress in participants.

## P-22

### Are We Protected: Radiation Protection Awareness In Healthcare Professionals

SYED MANSOOR NAQVI  
AMIN RAJANI

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: mansoor.naqvi@aku.edu*

Use of ionizing radiation is increased multifold during last few years and the range of radiation users is widened from radiologists to surgeons and physicians and from radiographers to OT technicians and ERCP assistants. Radiation protection is a regular part of formal training of the radiologists and radiographers but the widened scope has raised the concern over the awareness level of the other healthcare workers involved in radiation involved procedures as the radiation exposures can lead to stochastic effects of radiation to them. This study represents the awareness level of the workers and help identifying the training needs and also improvements required in training programs of other healthcare workers.

## P-23

### Infection Control In The Radiology Department Of A Tertiary Care Hospital

MASOOD AHMED  
AMIN RAJANI  
RAZA SAYANI

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: masood.ahmed@aku.edu*

**INTRODUCTION:** Control of infection, standardization of infection and safety practices are primary concerns for all healthcare institution of today's time. Every effort is made to ensure minimization of hospital acquired infections for both staff and patients. Sessions are organized with aim to improve the level of awareness in healthcare professionals; the same is done by our department of radiology at Aga Khan University hospital where from time to time we have been arranging awareness session for staff in general on various aspects of infection control. Last year a module was introduced for non-clinical staff and 50 staff of Radiology were trained on that dedicated module.

**OBJECTIVE:** This study is aimed at assessing staff awareness amongst people who had training on infection control module with those who had not. However, other group in general had been exposed to awareness session conducted by department on various occasions. To evaluate both groups a questionnaire was developed and both groups were assessed on same for the level of information they both possess.

The study will help us determine the impact of training module on staff that underwent training, and help us understand the causes, which were responsible, and to see if there is any difference between the level of awareness in both groups. The result compilation is in process.

**P-24****Observation Of Radiographer's Communication Skills: A Survey**

SHAHEEN DHANANI  
AMIN SHAH  
AFSHEEN MAHMOOD  
M. TAMEEM AKHTAR

*Department of Radiology, Ziauddin University Hospital, Karachi, Pakistan  
E-mail: shaheen.dhanani@aku.edu*

**INTRODUCTION:** Good medical care depends upon effective communication between patients and health care providers. Ineffective communication can lead to improper diagnosis and delayed or improper medical treatment. Effective communication with persons who have limited language proficiency, as well as persons who are deaf or hard-of-hearing, often requires interpreters or other services. However, hospitals face increasing challenges to meet the communication needs of an increasingly diverse population. On the other hand there are many so-called "ethical conflicts" in medical ethics are traceable back to a lack of communication. Communication breakdowns between patients and their healthcare team, between family members, or between members of the medical community, can all lead to disagreements and strong feelings. These breakdowns should be remedied, and many apparently insurmountable "ethics" problems can be solved with open lines of communication.

**PURPOSE:** Communication in medical imaging is a neglected area of research, despite the necessity for good communication if optimum diagnostic images are to be achieved and the purpose is to improve sharing of information between patients and radiographer to keep front-line staff and patients better informed.

**METHODOLOGY:** The present study has investigated the styles of communication used in medical imaging, using an approach known as Transactional Analysis. This approach has been demonstrated by using observations and supporting questionnaire with inter-rater observations of radiographer-patient interactions. All patients scheduled (or unscheduled) for any diagnostic or interventional procedure in different areas of the Departments of several tertiary care hospitals were eligible for the survey conducted over the months of September in 2010. Patients completed a semi-structured self-administered questionnaire during their reception stay and during and after their procedure. During the survey period \_\_\_\_\_ numbers of patients were eligible; \_\_\_\_\_ numbers of patients were refused. The group surveyed consisted \_\_\_\_\_ numbers of females & \_\_\_\_\_ numbers of males.

**RESULT:** In process

**P-25****Radiographic Evaluation Of The Portable Chest Xrays In AKUH**

MUHAMMAD EMMADUDDIN  
AMIN RAJANI  
ABDUL TASNEEM  
MUHAMMAD IDRIS

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: muhammad.emaduddin@aku.edu*

**INTRODUCTION:** Mobile radiography deals with those patients who are unable to move radiology department. Mobile radiography is a challenging job because conditions are not favourable to do perfect x-rays. The interfering factors include patient condition, tube angulations, exposure factors, artifacts etc. These interfering factors also interfere with the quality of portable radiographs. Because of these interfering factors, portable x-rays are of less quality with x-

rays doing in department. The present study is doing to find out the ways by which we can overcome these interfering factors.

**OBJECTIVE:** The purpose of this study is to evaluate the portable chest x-rays and to overcome the factors interfering quality of these x-rays

**MATERIAL AND METHOD:** The study included all adult portable chest x-rays done in wards and ER in sitting position, but excluded all pediatric and adult portable chest x-rays done in supine position in special care units. The data used in this study is gathered from local computer network. Results are in compilation.

**RESULTS:** A total of 65 radiographs assessed in 65 patients out whom 38 were males and 27 females. The radiographic marker was placed on all films, which were proper in 40 and improper in 25 patients. The most accurate parameter was exposure factors, which were accurate in all cases. Regarding collimation, it was proper in 31 and improper in 34 patients. There were a significant number of artifacts, which comprise of 7 internal and 25 external while rest of 33 exams were free of artifacts. Tube angulations and positioning was other areas which yielded poor results with 48 exams showing wrong angulations and 49 exams with improper positioning respectively.

**CONCLUSION:** Over the entire exposure factor remains the best parameter while the tube angulations and positioning showed poor results. Hence, radiographers need extensive training to carry out portable exams to yield good results and better patient care.

**P-26****The Adequacy Of Clinical History On Radiological Request Forms Received At The Diagnostic Center Of A Tertiary Care Hospital**

AMIN RAJANI  
TARIQ ALAM  
YASIR JAMIL

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: rajani.amin@aku.edu*

**OBJECTIVES:** To assess the adequacy of Clinical history on radiological request forms received at the diagnostic center of a tertiary care hospital.

**MATERIAL AND METHODS:** A total of 350 request forms with 50 requests each for computed tomography scan (CT scan), Magnetic Resonance Imaging (MRI), U/S, Fluoroscopy, nuclear medicine, plain radiography and mammography received, were studied for adequacy of clinical history regarding radiological examination provided by the referring clinician.

**RESULTS:** Adequate clinical history was given only in 55 (18%) patients. In a total of 105 patients no clinical history was provided. In the remaining 245 patients clinical history was provided but it was inadequate regarding the examination required.

Most of the clinical histories (39 patients) were not provided for plain radiographic examination, followed by fluoroscopic (27 patients) procedures.

Abbreviations which are not universally acceptable were used in all the forms.

**CONCLUSION:** Our study findings revealed that, radiological request forms are often inadequately filled. It is important that clinicians be educated on the value of correctly filling request form.

This will help in making a diagnosis that will aid in an effective and concise management of the patient which can only be achieved if the clinicians give a detailed clinical history through a properly filled request form.

**P-27****Film Analysis Of Fluoroscopic Barium Procedures Before And After Computed Radiography**

SADIA SHAHID  
AMIN RAJANI  
VAQAR BARI  
UZMA NAZ

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: sadia.shahid@aku.edu*

**INTRODUCTION:** After conventional radiography, Computed radiography is the technique that is used world widely. Computed radiography can over expose without an adverse impact on image quality. In conventional radiography, excessive exposure produces a black film and inadequate exposure produces a white film, both with reduced contrast. In Computed radiography systems, image brightness can be adjusted post processing independent of exposure level. The objective of the study is to avoid unnecessary patient doses; doses which have no additional benefit for the clinical purpose intended. With computed fluoroscopy systems it is very easy to obtain and delete images. There may be a tendency to obtain more images than necessary. This would irradiate the patient more than is clinically necessary.

A study with this objective has not been performed previously and a thorough literature search did not reveal any similar study.

**OBJECTIVE:** To evaluate the impact of computed radiography on fluoroscopic guided Barium procedures and compare with conventional radiography.

**P-28****Radiology Angiographic Procedure Knowledge In Student Nurses of Aga Khan University –School Of Nursing**

AMIN RAJANI  
RAZA SAYANI  
ROZINA KARMALIANI  
SHABANA MAQSOOD

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: rajani.amin@aku.edu*

**INTRODUCTION:** Role of Radiology department has significantly changed over the years, from diagnostics; the journey has now added many interventional procedures. Despite of significant advancement, it has been observed that general perception of word angiography is associated with cardiac angiography.

This study assessed the level of knowledge of student nurses regarding the angiographic procedure carried out in Radiology department. The nursing students during their learning period are rotated in Radiology department as well as come across patients in ward who require angiography. This audit will reveal the level of knowledge they have regarding this procedure and assess the level of awareness they have for the pre and post procedure preparations.

**OBJECTIVE:** To assess the Angiography procedure knowledge in student nurses, identify the areas of improvement and initiate education sessions.

**MATERIAL AND METHOD:** Radiology department staff in collaboration with school of Nursing, Aga Khan University Hospital, conducted this survey. A simple survey form was circulated amongst Student Nurses. The forms were collected over a period of two weeks. Data was summarized and results were evaluated.

**RESULTS:** A total of 100 forms were received. Survey revealed that 99 %

knew about angiography however only 67% were aware of non-cardiac angiography. 91 % responded positively about the awareness of location where as non cardiac and cardiac angiography were performed but on specific inquiry regarding the location only 7 were definite about all types of angiographies including cardiac , non cardiac (Radiology)and fluoescen angiography (eye). 45 knew about cardiac and radiological angiographies and 44 only knew about cardiac angiographies. With respect to indications, 47 had reasonable information and 38 had inadequate information. 55% knew about the preparation for angiography whereas 45 % were not well aware of it. 91 % were aware of post angiography procedure whereas 9% were not aware of them.

**CONCLUSION:** The results were indicative that generally, student nurses are not much aware of non-cardiac angiographies and procedure performed however because of extensive dealing with cardiac angiographic patients the pre and post procedure care of patients is generally satisfactory. Further rotations and lectures may be helpful in increasing awareness and increasing patient care.

**P-29****Development Of New Radiographic Technique For Imaging Whole-spine And Lower Extremities On Long CR Cassette**

SYED MANSOOR NAQVI  
ABDUL HAMID TASNEEM  
WARIS JAMAL

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: mansoor.naqvi@aku.edu*

**PURPOSE:** The regular Computed Radiography (CR) system is producing low quality images with long-cassettes for heavy patients. Several alternates been checked including conventional screen-film cassettes instead of CR, increased exposure with CR cassettes, advice was also sought from the manufacturer of CR for improvement and efforts to improve existing CR cassettes

**MATERIALS & METHODS:** We developed an in-house technique for such procedures. We started to explore our resources and found a grid which is used with Screen-Film cassettes in conventional radiography meeting our need. Grid was installed on the long CR cassette and test procedures were performed with water phantom and higher exposures than 200 mAs & 100 kV and found encouraging results, the same then is applied for patients

**RESULTS:** Adapted method is producing the good quality images & now become our standard practice

**CONCLUSION:** Grids used in screen-film radiography can be installed on CR long film cassettes and such combination produces remarkably improved images. The only disadvantage is the increase in radiation exposure by a factor 1.5 to the patients but following the basic rule for all x-ray procedure it is acceptable.

**P-30****Awareness Of Basic Life Support Knowledge In Radiology Staff**

AMIN RAJANI  
KANWAL DAWOODI  
YASIR JAMIL  
TARIQ ALAM

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: rajani.amin@aku.edu*

**PURPOSE:** Practical training in basic life support (BLS) is an essential aspect of managing acutely ill patients. The purpose of this study is to assess and analyze the current status of theoretical and practical knowledge amongst the paramedical staff at our tertiary care centre.

**SUMMARY:** An evaluation was done, by distributing questionnaires amongst all paramedical staff in our hospital. In the questionnaire basic demographic details and simple questions regarding basic life support procedures were inquired about. The response rate was 95 %. The questionnaire was either handed over directly or sent through e. mails to the participants.

**CONCLUSION:** This study emphasizes the need for regular life refresher courses arranged on successive basis every 2–3 years for the paramedical staff especially radiology personnel since they are the ones amongst many who are involved in managing the multi trauma patient.

**P-31****Do We Need To Improve? A Customer Satisfaction Survey In Ultrasound Suite**

AMIN RAJANI  
BASIT SALAM  
DARAKHSHAN KANWAL  
IMRANA MASROOR  
AFROZA DANISH

*Department of Radiology, Aga Khan University Hospital, Karachi, Pakistan  
E-mail: rajani.amin@aku.edu*

**INTRODUCTION:** Radiologic services are essential to the care of patients and as a service provider one needs to understand the quality and delivery of service. This includes knowledge of customer service, customer satisfaction and all its related issues as well as quality assurance and improvement issues.

**OBJECTIVE:** The purpose of this study is to determine the level of customer (i.e patient) satisfaction in the ultrasound suite as regards to the staff at reception, staff in the ultrasound suite and the radiologist attending them in the ultrasound room.

**MATERIALS & METHODS:** We conducted a cross sectional survey in department of radiology, Aga Khan University hospital Karachi from July 01, 2009 to July 31, 2009. The information was collected through a designed questionnaire by a third party volunteer after informed consent. The questionnaire initially assessed service satisfaction at the reception, in the ultrasound suite and the radiologist attending them in the room. The indicator for quality of service given included promptness, attention, caring attitude, clarity of instructions given and self introduction by the doctor and the staff attending them.

**RESULTS:** Our results indicate that areas of service for staff at reception, the overall rating was 76.5% as good and very good, only 21.5% rated service as just ok or poor, in area of staff in ultrasound, 87% rated service as good and very good, 11% rated as just ok or poor. In area of Radiologists in ultrasound suite, 84% rated service as good and very good and 15% rated as just ok or poor. On average customer response was 98.5% and 1.5% did not responded.

**CONCLUSION:** Based on our survey it was observed that customer showed overall satisfaction but in general we identify few concerns through which we could further improve our standards of service, with specific focus on our first point of contact that is at reception.